

Travax Traveler Report

Insect precautions for day and night. OTC products recommended:

* DEET lotion 30-50% (25-30% for children) or Picaridin (concentration 20% or greater for tropical travelers) to be applied after other skin products have dried on the skin. Both DEET and picaridin-containing repellents can be used in children $\geq$ 2 months of age.

Reapply as needed.

* Permethrin apply to outer clothing, hats, day bags, shoes/shoelaces until damp. Allow to dry. Good for 6 weeks or 6 washings.

These products can be found at sporting goods stores, some pharmacies, and online.

Itinerary

Round Trip:

United States → Singapore → Hong Kong → Philippines → Japan → United States

Health Concerns Summary

The following may pose a risk or require preventive measures based on this itinerary. See the report sections below for details.

- ▮ Vaccine-Preventable Diseases: cholera, hepatitis A, hepatitis B, influenza, Japanese encephalitis, measles, mumps, rubella, rabies, tick-borne encephalitis, typhoid fever
- ▮ Malaria
- ▮ Other Diseases: avian influenza, chikungunya, dengue, enteroviruses, hantavirus, helminths, leptospirosis, Lyme disease, melioidosis, rickettsial infections, schistosomiasis, travelers' diarrhea, tuberculosis, Zika

Yellow Fever

Requirement Information (for entry, per WHO)

Is yellow fever vaccine an official entry requirement for this itinerary?

NO. An official certificate showing vaccination is not required for entry by any country on the entered itinerary sequence, but view full details and see "YF Requirement Table" if there are additional transited countries.

Visa application: Proof of YF vaccination may be required for certain visa applicants. Travelers should contact the appropriate embassy or consulate with questions and, if it is required for their visa, carry the YF certificate with their passport on the day of travel.

Yellow Fever Requirement Table for this Itinerary

The following values result in the "NO" requirement result shown above (based on a round trip with United States as the home country):

Yellow Fever Requirement Table				
Country	Transm. Risk	Required if Coming From	Applies to Ages	See Note
UNITED STATES	No	None	None	
SINGAPORE	No	Country with Transm. Risk	$\geq$ 1 year	2
HONG KONG	No	None	None	
PHILIPPINES	No	Country with Transm. Risk	$\geq$ 1 year	2
JAPAN	No	None	None	

Note 2: Airport transit stops (no exit through immigration checkpoint) in a "Required if Coming From" country may impact the YF requirement. Please refer to the Individual Country Requirements information presented below to review this country's requirement and evaluate whether a traveler's transit stops may change the YF requirement result.

Individual Country Requirements

Effective July 11, 2016, the ICVP for yellow fever vaccination will be valid for life, and this validity applies to existing and new certificates for the purposes of international travel. Revaccination or a booster dose of YF vaccine cannot be required of international travelers as a condition of entry into any country regardless of the issued ICVP date; validity begins 10 days after the date of vaccination. On new ICVPs, "life of person vaccinated" should be entered in the validity space on the certificate. Whether recognition of the new lifetime validity regulation by personnel at the point of entry in countries with previous 10-year validity policies will occur immediately is uncertain.

Philippines

A vaccination certificate is required for travelers aged ≥ 1 year coming from countries with risk of YF transmission. This also applies to all airport transit stops in risk countries.

Singapore

A vaccination certificate is required for travelers aged ≥ 1 year coming from countries with risk of YF transmission. This also applies to airport transit stops (no exit through immigration checkpoint) longer than 12 hours in risk countries.

Recommendation Information (for health protection)

Is yellow fever vaccine a recommended protective measure for this itinerary?

NO. Vaccination is not necessary as a protective measure for any country on this itinerary.

Travel Immunization Recommendations

Hepatitis A

Hong Kong, Philippines

Recommended for: all travelers.

Singapore

Recommended for: travelers with adventurous dietary habits, prolonged stays, or itineraries outside of common tourist (or other prearranged fixed) packages.

Consider for: all risk-averse travelers desiring maximum pretravel preparation.

Japan

Recommended for: risk-averse travelers desiring maximum pretravel preparation.

Typhoid fever

Philippines

Recommended for: all travelers.

Hong Kong, Singapore

Recommended for: only the most risk-averse travelers, with high risk of exposure to very poor hygiene in remote areas, who desire maximum pretravel preparation.

Influenza

Hong Kong

Risk exists throughout the year, with highest activity from November through March and from May through July.

Recommended for: all travelers due to demonstrated influenza risk in this group.

Singapore

Risk exists throughout the year, with peak activity from December through February and from June through July.

Recommended for: all travelers due to demonstrated influenza risk in this group.

Japan

Risk exists from November through April, with highest activity usually occurring from December through March, although off-season transmission can occur.

Recommended for: all travelers during transmission season due to demonstrated influenza risk in this group.

Philippines

Risk exists from June through October, although off-season transmission can occur.

Recommended for: all travelers during transmission season due to demonstrated influenza risk in this group.

Vaccination Considerations

Hong Kong, Japan, Philippines, Singapore

Travelers not already immunized with the currently available vaccine formulation should be vaccinated. Travelers immunized with the current formulation more than 6 months earlier should consider revaccination because immunity may have declined. Consider baloxavir or oseltamivir as standby therapy, especially for those who are at high risk for complications from influenza or inadequately vaccinated.

Hepatitis B

Hong Kong

Recommended for: all health care workers; adventure travelers; travelers with high potential to seek medical or dental care in local facilities; prolonged stays; frequent short stays in this or other high or intermediate risk countries; possible contact with contaminated needles (e.g., acupuncture, tattooing, or injection-drug use); possible sexual contact with a new partner during the stay.

Consider for: short stays in risk-averse travelers desiring maximum pretravel preparation.

Travelers should be informed of safer sex practices and blood/bodily fluids precautions.

Japan

Recommended for: all health care workers; possible sexual contact with a new partner during the stay; possible contact with contaminated needles (e.g., acupuncture, tattooing, or injection-drug use).

Travelers should be informed of safer sex practices and blood/bodily fluids precautions.

Philippines, Singapore

Recommended for: all health care workers; adventure travelers; prolonged stays; frequent short stays in this or other high or intermediate risk countries; possible contact with contaminated needles (e.g., acupuncture, tattooing, or injection-drug use); possible sexual contact with a new partner during the stay.

Travelers should be informed of safer sex practices and blood/bodily fluids precautions.

Measles, mumps, rubella

Hong Kong, Japan, Philippines, Singapore

Indicated for those born in 1957 or later (1970 or later in Canada and U.K.; 1966 or later in Australia) without evidence of immunity or of 2 countable doses of live vaccine at any time during their lives. Also indicated for those born before 1970 (in Canada) without evidence of immunity or previous vaccination with 1 countable dose of measles-containing vaccine.

Rabies

Philippines

Significant risk from dogs exists throughout the country.

Recommended for prolonged stays: all travelers and expatriates, with a priority for young children.

Recommended for short stays: adventure travelers, hikers, cyclists, and cavers; locations more than 24 hours' travel from a reliable source of human rabies immune globulin and rabies vaccine for postexposure treatment; animal workers (such as veterinarians and wildlife professionals); all travelers likely to have contact with bats.

Consider for: risk-averse travelers with short stays desiring maximum pretravel preparation.

Dog, other terrestrial mammal, and bat bites or scratches should be taken seriously, and postexposure prophylaxis should be sought even in those already immunized.

Hong Kong, Japan, Singapore

Risk of lyssavirus from bats exists and is presumed to have widespread distribution. Rabies is not present in canines or other mammals.

Recommended for: all travelers likely to have contact with bats.

Bat bites or scratches should be taken seriously, and postexposure prophylaxis should be sought even in those already immunized.

Japanese encephalitis

Japan

Risk exists in rural agricultural areas throughout the country, except Hokkaido Island. Transmission occurs from July through November, with peak activity from August through September.

Recommended for prolonged stays: all travelers with anticipated travel to risk areas and all expatriates (both urban and rural).

Recommended for short stays: travelers going to rural areas where risk exists, especially those with anticipated extensive outdoor exposure during the transmission season.

Not recommended for: travelers going to urban areas only; day trips and short overnight trips to usual tourist sites; travel outside of the transmission season.

Travelers should observe insect precautions from dusk to dawn.

Philippines

Risk exists in rural agricultural areas throughout the country, including peri-urban areas surrounding Manila. Transmission occurs throughout the year, with highest activity from June through July.

Recommended for prolonged stays: all travelers with anticipated travel to risk areas and all expatriates (both urban and rural).

Recommended for short stays: travelers going to rural areas where risk exists, especially those with anticipated extensive outdoor exposure during the transmission season.

Not recommended for: travelers going to urban areas only; day trips and short overnight trips to usual tourist sites.

Travelers should observe insect precautions from dusk to dawn.

Hong Kong

Negligible risk exists in rural agricultural areas limited to New Territories. Transmission occurs from May through July.

Vaccination is not recommended.

Travelers should observe insect precautions from dusk to dawn.

Singapore

Negligible risk exists in rarely visited agricultural areas. Transmission occurs throughout the year.

Vaccination is not recommended.

Travelers should observe insect precautions from dusk to dawn.

Cholera

Philippines

Risk exists throughout the country (including Manila), especially in Eastern, Central, and Western Visayas, Calabarzon, and Northern Mindanao regions.

Recommended for: aid and refugee workers.

Strict food and beverage precautions and hand-hygiene measures are recommended.

Tick-borne encephalitis

Japan

Low risk exists in Hokkaido Prefecture. Transmission occurs from April through October.

Consider for prolonged and short stays: expatriates and travelers who anticipate extensive hiking, camping, or other outdoor activities in forested risk areas.

Vaccine is only available in Europe (and by special release in Australia). Tick precautions are recommended.

Routine Immunization Recommendations (adults only)

Tetanus, diphtheria, pertussis

Due to increasingly frequent pertussis outbreaks worldwide, all travelers should receive Tdap vaccine every 10 years, assuming they previously received an adequate primary series. Those who received Td or TT for their most recent booster should receive an immediate dose of Tdap, regardless of the interval since the last tetanus dose.

Pneumococcal

Recommended for adults aged ≥ 65 years and all adults with chronic disease or immunocompromising conditions.

Varicella

Indicated for all persons born outside the U.S. or born in the U.S. after 1979, except not indicated for persons with an adequate vaccination history (2 lifetime doses), reliable evidence of previous infection, or laboratory confirmation of immunity.

Malaria

Malaria General Information

Philippines

General malaria information: predominantly *P. falciparum*. Transmission occurs throughout the year. Human *P. knowlesi* infection has been reported on Palawan Island but is rare in travelers.

Malaria Recommendations

Philippines

Chemoprophylaxis is recommended for all travelers: areas below 600 m (2,000 ft) in the provinces of Palawan and Sulu; all cities and towns within these areas; rural areas below 600 m in certain provinces of Mindanao Island.

Chemoprophylaxis is recommended for certain travelers (see Issues to Consider box): throughout the province of Tawi-Tawi; rural areas below 600 m in the provinces of Apayao, Zambales, and Mindoro Occidental.

Insect precautions only are recommended (negligible transmission is reported): rural areas below 600 m in certain provinces of Luzon, Panay, Negros, Basilan, and Mindanao islands.

No preventive measures are necessary (no evidence of transmission exists): Manila and all other cities not mentioned above; Boracay resort areas; elevations above 600 m; all other areas not mentioned above.

Malaria Prophylaxis

Drug choice depends on personal factors discussed between the traveler and medical provider. No preventive measure is 100% effective. Immediate medical attention is necessary for fever or influenza-like illness within 3 months after travel in a malaria risk area. Include mention of travel history.

Philippines

Preventive measures: Travelers should observe insect precautions from dusk to dawn in areas with any level of transmission. Atovaquone-proguanil (Malarone or generic), doxycycline, mefloquine, and tafenoquine are protective in this country. G6PD testing is required prior to tafenoquine use.

Issues to Consider	
Factors favoring chemoprophylaxis	Factors against chemoprophylaxis
- Adventure travel - Risk-averse and vulnerable travelers	- Air-conditioned hotels only - Urban areas only

- | Areas subject to infrequent epidemics
- | Immigrants visiting friends and relatives
- | Flexible itineraries
- | Travel longer than 1 month
- | Unreliable medical expertise and/or treatment drugs at destination

- | Non-transmission season
- | Minimal nighttime exposure
- | Travel shorter than 3 days

For more information, see *Technical Explanation of Malaria Mapping*.

Travelers' Diarrhea

Hong Kong

Moderate risk exists throughout the country, with minimal risk in deluxe accommodations. Food and beverage precautions may reduce the likelihood of illness.

Travelers should carry loperamide for self-treatment of diarrhea and azithromycin to add if diarrhea is severe.

Japan, Singapore

Minimal risk exists throughout the country. Community sanitation is generally good, and health concerns related to food and beverages are minimal.

Philippines

Moderate risk exists throughout the country, including in deluxe accommodations. Food and beverage precautions may reduce the likelihood of illness.

Travelers should carry loperamide for self-treatment of diarrhea and azithromycin to add if diarrhea is severe.

Current Health Bulletins

Measles, Mumps, Rubella

Japan

Rubella, Mainly in Greater Tokyo Area, Has Peaked

Updated Mar 15, 2019 (Posted Feb 19, 2019)

According to Japan's National Institute of Infectious Diseases, more than 95 cases of rubella per week are occurring, mainly in Chiba, Kanagawa, Osaka, and Tokyo prefectures. More than 3,300 cases (a significant increase over average incidence) have occurred since September 2018 in 46 of 47 prefectures, mainly Tokyo (> 1,000 cases), Chiba, and Kanagawa. The outbreak has peaked. Shoreland continues to make the following recommendations for travelers: All individuals ≥ 12 months of age born in 1957 or later in the U.S. without history of disease or of 2 countable doses of live vaccine at any time during their lives should complete a lifetime total of 2 doses of measles, mumps, and rubella (MMR) vaccine (spaced by at least 28 days) for protection against all 3 diseases. All infants aged 6-11 months should receive 1 dose of MMR vaccine. Pregnant women who are not protected should avoid traveling to Japan during this outbreak, especially during the first 20 weeks of pregnancy.

Japan

Significant Measles Increase, Mainly in Tokyo and 2 Prefectures, Has Peaked

Updated Mar 15, 2019 (Posted Feb 18, 2019)

According to Japan's Ministry of Health, approximately 40 cases of measles per week are occurring, mainly in Tokyo and in Osaka Prefecture. More than 280 cases (a significant increase over average incidence) have occurred since January 1, 2019, in 21 of 47 prefectures, mainly in Mie (50 cases) and Osaka (> 100 cases), as well as in the greater Tokyo area (> 25 cases). The outbreak has peaked. Shoreland continues to make the following recommendations for travelers: All individuals ≥ 12 months of age born in 1957 or later (1970 or later in Canada and the U.K.; 1966 or later in Australia) without history of disease or of 2 countable doses of live vaccine at any time during their lives should complete a lifetime total of 2 doses of MMR vaccine (spaced by at least 28 days). All infants aged 6-11 months should receive 1 dose of MMR vaccine. All those born before 1970 (in Canada) without evidence of immunity or previous vaccination with 1 countable dose of measles-containing vaccine need 1 dose of MMR vaccine.

Philippines

Measles Has Peaked, Including in Metro Manila

Updated Mar 12, 2019 (Posted Feb 19, 2019)

According to the Philippines' Department of Health, more than 2,200 cases of measles per week (a significant increase over average incidence) are being reported throughout the country, mainly in Metro Manila and in Calabarzon and Central Luzon regions. More than 18,500 cases (including 177 laboratory-confirmed) have been reported since January 1, 2019, throughout the country (primarily in unvaccinated children aged ≤ 4 years), especially in Metro Manila ($> 3,800$ cases) and in the regions of Calabarzon ($> 4,000$ cases), Central Luzon ($> 2,800$ cases), Northern Mindanao, and Central, Eastern, and Western Visayas. The outbreak has peaked. Cases have been reported in travelers returning from the Philippines. Shoreland continues to make the following recommendations for travelers: All individuals ≥ 12 months of age born in 1957 or later (1970 or later in Canada and the U.K.; 1966 or later in Australia) without history of disease or of 2 countable doses of live vaccine at any time during their lives should complete a lifetime total of 2 doses of MMR vaccine (spaced by at least 28 days). All infants aged 6-11 months should receive 1 dose of MMR vaccine. All those born before 1970 (in Canada) without evidence of immunity or previous vaccination with 1 countable dose of measles-containing vaccine need 1 dose of MMR vaccine.

Current Safety Bulletins

Hong Kong, Japan, Singapore

Closure of Airspace

Updated Mar 12, 2019 (Posted Feb 27, 2019)

Due to escalating tensions between India and Pakistan, Pakistan has closed portions of its airspace intermittently. Flights over India and Pakistan to Europe, the Middle East, and Asia may be disrupted or rerouted. Travelers should contact their airline for more information and monitor the situation through local media.

Other Concerns

Altitude illness

Japan

Chemoprophylaxis with acetazolamide should be considered for travelers anticipating rapid ascent to sleeping altitudes above 2,800 m (9,200 ft). Climbers summiting Mount Fuji reach an elevation of 3,700 m (12,400 ft), but most do not stay overnight on the mountain.

Dengue

Philippines

Significant risk exists in urban and rural areas throughout the country, especially in central areas of Luzon Island (including Manila) and on the islands of Biliran, Bohol, Leyte, Samar, and Siquijor. Transmission occurs throughout the year, especially during the rainy season, with highest activity from June through November. Travelers should observe daytime insect precautions.

Singapore

Significant risk exists throughout the country. Transmission occurs throughout the year, especially during the rainy season. Travelers should observe daytime insect precautions.

Hong Kong

Negligible risk exists in rural areas. The majority of reported cases are imported. Transmission occurs from June through December. Travelers should observe daytime insect precautions.

Chikungunya

Philippines

Risk exists throughout the country. Daytime insect precautions are recommended.

Singapore

Risk exists throughout the country. Transmission occurs throughout the year. Daytime insect precautions are recommended.

Zika

Philippines

Risk exists and is presumed to have widespread distribution, including the Manila metropolitan area, central and southern provinces of Luzon Island, and Central and Western Visayas. Pregnant women (in any trimester) should receive informed counseling and consider postponing nonessential travel to this country, which has longstanding endemic transmission. Travelers, especially pregnant women, should observe daytime insect precautions.

Singapore

Negligible risk, with no evidence of current transmission, exists throughout the country. Travelers, especially pregnant women, should observe daytime insect precautions.

Marine hazards

Hong Kong

Risk from jellyfish exists, including highly venomous bluebottle jellyfish. Travelers wading, launching boats, or fishing are especially at risk. Risk from coral, stonefish, and sea urchins exists. Travelers should seek out and heed posted warnings and refrain from bathing at unmarked, unpatrolled beaches.

Japan

Risk from potentially deadly Habu-kurage jellyfish exists around Okinawa Island and Ryuku Islands (Okinawa Prefecture) throughout the year, but especially from June through September. Travelers wading, launching boats, or fishing are especially at risk. Risk from stonefish and sea urchins exists. Risk from coral is limited to Okinawa Island and Yaeyama Islands (Okinawa Prefecture). Travelers should seek out and heed posted warnings and refrain from bathing at unmarked, unpatrolled beaches.

Philippines, Singapore

Risk from potentially deadly Australian box jellyfish exists throughout the year, but especially during the rainy season. Travelers wading, launching boats, or fishing are especially at risk. Risk from coral, stonefish, and sea urchins exists. Travelers should seek out and heed posted warnings and refrain from bathing at unmarked, unpatrolled beaches.

Tuberculosis

Philippines

Tuberculosis (TB) is common in all developing countries. TB incidence in this country is greater than 100 cases per 100,000 population (the highest risk category). According to WHO, this is a high-burden multidrug-resistant TB country.

A documented interferon gamma release assay or, alternatively, a tuberculin skin test is recommended before departure and after return for all travelers planning to stay more than 3 months and for stays longer than 1 month for health care workers and those with anticipated exposure in prisons, homeless shelters, refugee camps, or shanty towns.

Travelers should avoid crowded public places and public transportation (whenever possible). Domestic help should be screened for TB.

Hong Kong, Singapore

Tuberculosis (TB) is common in all developing countries and presents risk in certain developed countries. TB incidence in this country is 25 to 100 cases per 100,000 population (not the highest risk category).

A documented interferon gamma release assay or, alternatively, a tuberculin skin test is recommended before departure and after return for stays longer than 1 month for health care workers and those with anticipated exposure in prisons, homeless shelters, refugee camps, or shanty towns.

Travelers should avoid people who are coughing in crowded public places (whenever possible). Domestic help should be screened for TB.

Schistosomiasis

Philippines

Risk exists on Luzon, Samar, and Leyte islands and eastern Mindoro Island. Travelers should avoid freshwater exposure in

risk areas.

Japan

Risk is presumed to be absent. Cases have not been reported since approximately 1977.

Rickettsial infections

Japan

Significant risk of scrub typhus exists in brush areas throughout the country, especially in Chiba, Fukushima, Kagoshima, and Miyazaki prefectures. Transmission occurs throughout the year, with highest activity from September through January. Travelers in brush areas should observe personal protective measures effective against mites.

Philippines

Significant risk of scrub typhus exists in brush areas throughout the country. Transmission occurs throughout the year, with highest activity from June through October. Travelers in brush areas should observe personal protective measures effective against mites.

Low risk of murine typhus exists and is presumed to have widespread distribution. Transmission occurs throughout the year. Travelers should avoid contact with rodents and their fleas.

Hong Kong

Risk of scrub typhus exists in brush areas throughout the country. Transmission occurs throughout the year, with highest activity from June through November. Travelers in brush areas should observe personal protective measures effective against mites.

Singapore

Low risk of murine typhus exists, mainly in and around migrant-labor housing. Transmission occurs throughout the year. Travelers should avoid contact with rodents and their fleas.

Avian influenza

Hong Kong

Subtype A (H5N6) poultry cases occur throughout the country. No human cases have ever been reported. Current influenza vaccines are not protective. Baloxavir and oseltamivir are effective. Risk to travelers is minimal, although they should avoid places where direct contact with poultry and their secretions may occur (such as live animal markets and poultry farms).

Japan

Subtype A (H5N6) poultry cases occur throughout Honshu Island (including the city of Tokyo). No human cases have ever been reported. Current influenza vaccines are not protective. Baloxavir and oseltamivir are effective. Risk to travelers is minimal, although they should avoid places where direct contact with poultry and their secretions may occur (such as live animal markets and poultry farms).

Philippines

Subtype A (H5N6) poultry cases occur in Nueva Ecija and Pampanga provinces, Luzon Island. No human cases have ever been reported. Current influenza vaccines are not protective. Baloxavir and oseltamivir are effective. Risk to travelers is minimal, although they should avoid places where direct contact with poultry and their secretions may occur (such as live animal markets and poultry farms).

Air pollution

Philippines

Air quality may be variable throughout the year. Annual mean particulate matter concentrations are unhealthy in select cities. Baguio, Cebu, Pasig, or Taguig: When air quality worsens, travelers should reduce prolonged or heavy outdoor exertion; those with lung disease or at the extremes of age should avoid prolonged or heavy outdoor exertion.

Manila or Quezon City: When air quality worsens, travelers with lung disease or at the extremes of age should reduce prolonged or heavy outdoor exertion.

Hong Kong

Air quality may be variable throughout the year. Annual mean particulate matter concentrations are unhealthy for sensitive

groups in select cities.

Hong Kong: When air quality worsens, travelers with lung disease or at the extremes of age should reduce prolonged or heavy outdoor exertion.

Japan

Air quality may be variable throughout the year. Annual mean particulate matter concentrations are unhealthy for sensitive groups in select cities.

Fukuoka, Kyoto, Okinawa, Osaka, Tokyo, or Yokohama: When air quality worsens, travelers with lung disease or at the extremes of age should reduce prolonged or heavy outdoor exertion.

Singapore

Air quality may be variable throughout the year. Annual mean particulate matter concentrations are unhealthy for sensitive groups in select cities.

Singapore: When air quality worsens, travelers with lung disease or at the extremes of age should reduce prolonged or heavy outdoor exertion.

Enteroviruses

Japan

Significant risk of hand, foot, and mouth disease (caused by enterovirus A71) exists throughout the country, especially in Tokyo and in Kyushu and Chugoku regions. Transmission occurs from May through December, with peak activity from June through August. Children aged ≤ 6 years account for almost all cases. Frequent handwashing is recommended.

Singapore

Significant risk of hand, foot, and mouth disease (caused by enterovirus A71) exists throughout the country. Transmission occurs throughout the year, with peak activity from March through May. Children aged ≤ 6 years account for almost all cases. Frequent handwashing is recommended.

Hong Kong

Risk of hand, foot, and mouth disease (caused by enterovirus A71) exists throughout the country. Transmission occurs throughout the year, with highest activity from April through November. Children aged ≤ 6 years account for almost all cases. Frequent handwashing is recommended.

Philippines

Risk of hand, foot, and mouth disease (caused by enterovirus A71) exists throughout the country, especially in the Western Visayas, Calabarzon, and National Capital regions. Transmission occurs throughout the year, with highest activity from June through December. Children aged ≤ 6 years account for almost all cases. Frequent handwashing is recommended.

Seafood poisoning

Hong Kong

Low risk exists in coastal areas and is presumed to have widespread distribution. Travelers should avoid consumption of reef fish such as amberjack, barracuda, grouper, and snapper. The toxin remains even when these fish are well cooked.

Japan

Low risk exists and is limited to Okinawa Prefecture and Shikoku and Kyushu Islands. Travelers should avoid consumption of reef fish such as amberjack, barracuda, grouper, and snapper. The toxin remains even when these fish are well cooked.

Philippines

Low risk exists and is presumed to have widespread distribution. Travelers should avoid consumption of reef fish such as amberjack, barracuda, grouper, and snapper. The toxin remains even when these fish are well cooked.

Medication restrictions

Japan

Customs authorities strictly regulate the importation of medications. Certain medications, including inhalers and some cough, cold, allergy, or sinus medications, may be prohibited and can result in detention for up to several weeks. In addition to narcotics and other controlled substances, banned ingredients include those deemed to be stimulants, such as

pseudoephedrine, levomethamphetamine, and the common cough suppressant dextromethorphan. For more information and a list of prohibited items, see the Japanese Ministry of Health, Labour and Welfare's website: www.mhlw.go.jp/english/policy/health-medical/pharmaceuticals/01.html.

Snakebites

Hong Kong, Philippines

Risk of envenomation exists in areas with dense vegetation or rock formations (especially in warm weather when snakes tend to be more active). Most snakebites result from startling snakes; do not disturb or handle snakes. Boots and long pants are recommended in high-threat situations. Medical care is indicated after any snakebite.

Leptospirosis

Philippines

Risk exists and is presumed to have widespread distribution. Travelers who anticipate activities with extensive outdoor exposure (e.g., hiking, biking, swimming, or rafting) should consider weekly prophylaxis with doxycycline.

Japan

Risk exists and is limited to Okinawa Prefecture. Travelers who anticipate activities with extensive outdoor exposure (e.g., hiking, biking, swimming, or rafting) should consider weekly prophylaxis with doxycycline.

Melioidosis

Singapore

Risk exists, and the disease is presumed to have widespread distribution. Transmission occurs throughout the year. Travelers engaged in hiking, biking, swimming, or other outdoor activities should wear proper footwear and avoid direct contact with potentially contaminated soil, ground water, or accumulated surface water.

Hong Kong

Low risk exists, and the disease is presumed to have widespread distribution. Transmission occurs throughout the year, with highest activity from May through September. Travelers engaged in hiking, biking, swimming, or other outdoor activities should wear proper footwear and avoid direct contact with potentially contaminated soil, ground water, or accumulated surface water.

Philippines

Sporadic cases have been reported, and the disease is presumed to have widespread distribution. Travelers should consider wearing proper footwear in damp environments.

Hantavirus

Hong Kong

Sporadic cases of severe hemorrhagic fever with renal syndrome (caused by Hantaan virus) have been reported and are presumed to have widespread distribution. Travelers, especially campers, should avoid inadequately ventilated buildings and outdoor areas harboring rodent excreta, which may become aerosolized, and should camp only in designated areas.

Lyme disease

Japan

Risk exists in some or all wooded areas throughout the country during the warmer months. Tick precautions are recommended.

Helminths

Japan

Risk exists for trematode infection (liver, lung, and intestinal flukes) throughout the country. Travelers should avoid undercooked fish and shellfish and raw vegetables and salads outside of deluxe establishments.

Philippines

Low risk exists for soil-transmitted helminths in urban and rural areas and is presumed to have widespread distribution. Travelers should follow strict food and beverage precautions and wear appropriate footwear.

Radiation

Japan

A 20 km (12 mi) exclusion zone (see [Travax Destinations: Japan](#), then "Fukushima Exclusion Zone") exists around the Daiichi nuclear reactor in Fukushima Prefecture. Travel to the exclusion zone is not recommended. Government authorities are amending specific exclusion zones and requirements on a community-by-community basis. Travelers should consult local guidance on arrival. Contaminated wastewater from the reactor is leaking both to groundwater and to the Pacific Ocean, the dilutive effects of which eliminate any health risk. All foods sold through commercial channels are strictly monitored based on enhanced radiation standards. Travelers should avoid food products from the region obtained outside the official market system or sold by private farmers.

Additional Information by Country

Hong Kong

Medical Summary

General Information

Hong Kong Special Administrative Region is an industrialized nation in the top 25% of the world's economies. Located in eastern Asia along the South China Sea (south of China), the climate is classified as subtropical dry winter.

Medical Care

A high level of private medical care (comparable to that in other industrialized countries) is available throughout the country. For a St. John's ambulance, call [+852] 1878-000. The national emergency number is 999. Taxi or private car is the recommended means of transport to the hospital.

Hyperbaric chambers for diving injuries are located in Hong Kong and on Stonecutters Island.

Upfront payment by cash or credit card, up to the total of all anticipated charges, is generally required by hospitals catering to foreigners prior to services or treatment. Upfront payment of other than a modest deposit may be waived by hospitals that have existing cashless agreements with at least some major international insurance providers. Public hospitals are required to provide emergency stabilization without regard to ability to pay.

Consular Advice

The material below includes information from the U.S. Department of State (DOS), U.K. Foreign & Commonwealth Office (FCO), Global Affairs Canada (GAC), and Australia's Department of Foreign Affairs and Trade (DFAT), as well as from additional open-source material. Standard safety precautions that apply to all international travel can be found in the [Library article Safety and Security](#).

Terrorism Risk

No intrinsic risk of attack by terrorist groups exists, but unforeseen attacks are possible.

Crime

Negligible risk of violent crime and low risk of petty crime exist throughout the country.

Scams involving time-share and property rentals and requests to export parcels that contain hidden narcotics have been reported.

Civil Unrest

Protests and demonstrations occur and are generally peaceful, but have the potential to turn violent without warning. Bystanders are at risk of harm from violence or from the response by authorities.

Water Safety

Rent water sports equipment from reputable operators. Scuba dive only with personnel certified by PADI or NAUI, and use equipment only from PADI- or NAUI-certified dive operators.

Transportation Safety

National incidence data on traffic-related injury or death are not available.

Traffic flows on the left-hand side of the road. Travelers (including drivers and pedestrians) accustomed to traffic moving on the opposite side should be vigilant when navigating traffic.

Airline Safety

U.S. Federal Aviation Administration has determined that the civil aviation authority of this country oversees its air carriers in accordance with minimum international safety standards.

Natural Disasters

The typhoon season is from April through October. The monsoon season is from May through October. Floods, mudslides, and landslides may occur.

Consular Information

Selected Embassies or Consulates in Hong Kong, a special administrative region of China

- | United States: [+852] 2523-9011; hk.usconsulate.gov
- | Canada: [+852] 3719-4700; www.hongkong.gc.ca
- | United Kingdom: [+852] 2901-3000; www.gov.uk/world/organisations/british-consulate-general-hong-kong
- | Australia: [+852] 2827-8881; hongkong.china.embassy.gov.au

China's Embassies or Consulates in Selected Countries

- | In the U.S.: Hong Kong does not have an embassy or consulate in the U.S.
- | In Canada: Hong Kong does not have an embassy or consulate in Canada.
- | In the U.K.: Hong Kong does not have an embassy or consulate in the U.K.
- | In Australia: Hong Kong does not have an embassy or consulate in Australia.

Visa/HIV Testing

HIV testing is not required to obtain a tourist, work, or residence visa.

Japan

Medical Summary

General Information

Japan is an industrialized nation in the top 25% of the world's economies. Located in eastern Asia between the Pacific Ocean and the Sea of Japan, climate classification ranges from humid temperate (no dry season) to humid cold (no dry season).

Medical Care

A high level of medical care (comparable to that in other industrialized countries) is available throughout the country. One or more JCI accredited hospitals are present in Tokyo and in several other major cities.

The national emergency number is 119. English translation is available.

Hyperbaric chambers for diving injuries are located in Kyoto and Tokyo.

Upfront payment by cash or credit card, up to the total of all anticipated charges, is generally required by hospitals catering to foreigners prior to services or treatment. Upfront payment of other than a modest deposit may be waived by hospitals that have existing cashless agreements with at least some major international insurance providers. Public hospitals may provide some services free to foreigners with long-stay visas.

Consular Advice

The material below includes information from the U.S. Department of State (DOS), U.K. Foreign & Commonwealth Office (FCO), Global Affairs Canada (GAC), and Australia's Department of Foreign Affairs and Trade (DFAT), as well as from additional open-source material. Standard safety precautions that apply to all international travel can be found in the Library

Consular Travel Warning

Due to potential nuclear radiation, Canada (GAC) and Australia (DFAT) advise avoiding travel to the districts and towns around the Fukushima Daiichi power plant that have been designated as exclusion zones by Japanese authorities. U.S. (DOS) and U.K. (FCO) have no current warnings.

Terrorism Risk

No intrinsic risk of attack by terrorist groups exists, but unforeseen attacks are possible.

Crime

Risk of sexual assault and low risk of petty crime exist in Tokyo, especially on subways and commuter trains and in the entertainment and nightlife districts of Roppongi, Kabukicho, Shinjuku, Shibuya, and Ikebukuro. Low risk of violent crime (armed robbery, sexual assault, carjacking, and murder) and petty crime exists throughout the rest of the country.

Scams involving credit cards and charging exorbitant fees for services have been reported.

Water Safety

Rent water sports equipment from reputable operators. Scuba dive only with personnel certified by PADI or NAUI, and use equipment only from PADI- or NAUI-certified dive operators.

Transportation Safety

Low risk of traffic-related injury or death exists. The road-traffic death rate is less than 7 per 100,000 population, the lowest risk category.

Traffic flows on the left-hand side of the road. Travelers (including drivers and pedestrians) accustomed to traffic moving on the opposite side should be vigilant when navigating traffic.

Airline Safety

U.S. Federal Aviation Administration has determined that the civil aviation authority of this country oversees its air carriers in accordance with minimum international safety standards.

Natural Disasters

The typhoon season is from May through December, especially in southern areas, including Okinawa Prefecture. Floods, mudslides, and landslides may occur.

Winter storms occur. Avalanches may occur, especially in Hokkaido Prefecture and western areas of Honshu Island.

Seismic and volcanic activity frequently occur.

Consular Information

Selected Embassies or Consulates in Japan

- | United States: [+81] 3-3224-5000; jp.usembassy.gov
- | Canada: [+81] 3-5412-6200; www.japan.gc.ca
- | United Kingdom: [+81] 3-5211-1100; www.gov.uk/world/organisations/british-embassy-tokyo
- | Australia: [+81] 3-5232-4111; japan.embassy.gov.au

Japan's Embassies or Consulates in Selected Countries

- | In the U.S.: www.us.emb-japan.go.jp
- | In Canada: www.ca.emb-japan.go.jp
- | In the U.K.: www.uk.emb-japan.go.jp
- | In Australia: www.au.emb-japan.go.jp

Visa/HIV Testing

HIV testing is not required to obtain a tourist, work, or residence visa.

Philippines

Medical Summary

General Information

The Philippines is a developing nation in the lower half of the world's economies. Located in Southeast Asia in the Pacific Ocean and consisting of more than 7,000 islands, the climate classifications range from humid equatorial (no dry season) in the south to humid equatorial (long dry season) in the north.

Medical Care

Adequate private medical care that meets most international standards is available in many major cities. Any serious medical condition will usually require evacuation. Singapore and Bangkok, Thailand are frequent destinations. Medical care throughout the rest of the country is inadequate and usually does not meet international standards. Several JCI accredited hospitals are present in Manila.

For a private ambulance in Manila, call Lifeline at 16-911 or (+63) 2-16-911. The national emergency number is 911.

Hyperbaric chambers for diving injuries are located in Manila, Batangas City, Cebu, Quezon City, and Subic.

Upfront payment by cash, up to the total of all anticipated charges, is generally required by hospitals catering to foreigners prior to services or treatment. Upfront payment of other than a modest deposit may be waived by hospitals that have existing cashless agreements with at least some major international insurance providers.

Consular Advice

The material below includes information from the U.S. Department of State (DOS), U.K. Foreign & Commonwealth Office (FCO), Global Affairs Canada (GAC), and Australia's Department of Foreign Affairs and Trade (DFAT), as well as from additional open-source material. Standard safety precautions that apply to all international travel can be found in the Library article Safety and Security.

Consular Travel Warning

Due to terrorism, kidnapping (including maritime kidnapping), and other ongoing security concerns, Canada (GAC) advises avoiding travel to the Sulu Archipelago, Mindanao Island (but only advises reconsidering travel [or avoiding nonessential travel] to Davao City) and throughout the South Sulu Sea, extending to the Malaysian coast. U.S. (DOS), U.K. (FCO), and Australia (DFAT) have more limited warnings.

Terrorism Risk

High risk of attack by domestic terrorist groups exists throughout the country, especially on Mindanao Island. Targets may include domestic and international organizations and businesses; public places and events, including those frequented by tourists; and transportation systems.

High risk of kidnapping by terrorist groups exists throughout the country, especially on Mindanao Island and in the Sulu Archipelago and coastal resorts and offshore areas in the Sulu and Celebes seas. Targets may include foreigners (especially Westerners).

Crime

Risk of violent crime (armed robbery, sexual assault, and murder) and high risk of petty crime exist throughout the country, especially in Manila and resort and urban areas.

Scams involving ATMs, credit cards, extortion, false befriending, and charging exorbitant fees for services have been reported.

Civil Unrest

Protests and demonstrations occur and have the potential to turn violent without warning. Bystanders are at risk of harm from violence or from the response by authorities.

Unsafe Areas

Armed conflict occurs, a dangerous security environment exists, and ethnic tensions are present on Mindanao Island and in surrounding areas.

In 2017, intense conflict between military forces and militants resulted in significant infrastructure destruction to Marawi City, Mindanao Island. Martial law (including curfews and security checkpoints) has been in place since May 2017.

Piracy (involving commercial and private, leisure vessels) occurs in coastal or international waters, especially in the Sulu and Celebes seas.

Water Safety

Passenger boats may be unsafe, including ferries traveling between islands. Decline water transportation in vessels that appear overloaded or lack personal flotation devices or life jackets.

Rent water sports equipment from reputable operators. Scuba dive only with personnel certified by PADI or NAUI, and use equipment only from PADI- or NAUI-certified dive operators.

Transportation Safety

Risk of traffic-related injury or death exists. The road-traffic death rate is 7 to 12 per 100,000 population. The rate is less than 10 in most high-income countries. Speed laws are poorly enforced.

Traffic flows on the right-hand side of the road. Travelers (including drivers and pedestrians) accustomed to traffic moving on the opposite side should be vigilant when navigating traffic.

Avoid public buses and light rail due to safety and security concerns, including risk of armed robbery.

Many taxis are unsafe. Use taxis from official ranks or dispatched via smart phone app or radio from a reputable company and ascertain the license or identification number of the dispatched vehicle.

Airline Safety

U.S. Federal Aviation Administration has determined that the civil aviation authority of this country oversees its air carriers in accordance with minimum international safety standards.

Natural Disasters

The typhoon season is from May through December. The monsoon season is from May through December. Floods, mudslides, and landslides may occur, including in Manila.

Seismic and volcanic activity frequently occur.

Consular Information

Selected Embassies or Consulates in Philippines

- | United States: [+63] 2-301-2000; ph.usembassy.gov
- | Canada: [+63] 2-857-9000; www.philippines.gc.ca
- | United Kingdom: [+63] 2-858-2200; www.gov.uk/world/organisations/british-embassy-manila
- | Australia: [+63] 2-7578-100; www.philippines.embassy.gov.au

Philippines' Embassies or Consulates in Selected Countries

- | In the U.S.: www.philippineembassy-usa.org
- | In Canada: philembassy.ca
- | In the U.K.: londonpe.dfa.gov.ph
- | In Australia: www.philembassy.org.au

Visa/HIV Testing

HIV testing is not required to obtain a tourist, work, or residence visa.

Singapore

Medical Summary

General Information

Singapore is an industrialized nation in the top 25% of the world's economies. Located in Southeast Asia along the Strait of

Johar and the Strait of Singapore (between Malaysia and Indonesia), the climate is classified as humid equatorial (no dry season).

Medical Care

A high level of private medical care (comparable to that in other industrialized countries) is available throughout the country. Several JCI accredited hospitals are present in Singapore.

For a public ambulance anywhere in the country, call 995.

A hyperbaric chamber for diving injuries is located in Singapore.

Upfront payment by cash or credit card, up to the total of all anticipated charges, is generally required by hospitals catering to foreigners prior to services or treatment. Upfront payment of other than a modest deposit may be waived by hospitals that have existing cashless agreements with at least some major international insurance providers.

Consular Advice

The material below includes information from the U.S. Department of State (DOS), U.K. Foreign & Commonwealth Office (FCO), Global Affairs Canada (GAC), and Australia's Department of Foreign Affairs and Trade (DFAT), as well as from additional open-source material. Standard safety precautions that apply to all international travel can be found in the Library article Safety and Security.

Terrorism Risk

Risk of attack by domestic and transnational terrorist groups exists throughout the country. Targets may include domestic and international organizations and businesses; public places and events, including those frequented by tourists; and transportation systems.

Crime

Negligible risk of violent crime and risk of petty crime exist throughout the country.

Scams involving time-share and property rentals and pirated merchandise have been reported.

Unsafe Areas

Piracy (involving commercial vessels) occurs in coastal areas and the Strait of Malacca.

Water Safety

Rent water sports equipment from reputable operators. Scuba dive only with personnel certified by PADI or NAUI, and only use equipment from PADI- or NAUI-certified dive operators.

Transportation Safety

Low risk of traffic-related injury or death exists. The road-traffic death rate is less than 7 per 100,000 population, the lowest risk category.

Traffic flows on the left-hand side of the road. Travelers (including drivers and pedestrians) accustomed to traffic moving on the opposite side should be vigilant when navigating traffic.

Airline Safety

U.S. Federal Aviation Administration has determined that the civil aviation authority of this country oversees its air carriers in accordance with minimum international safety standards.

Natural Disasters

The monsoon seasons are from December through March and from June through September. Floods, mudslides, and landslides may occur.

Seismic activity frequently occurs.

Consular Information

Selected Embassies or Consulates in Singapore

┆ United States: [+65] 6476-9100; sg.usembassy.gov

- | Canada: [+65] 6854-5900; singapore.gc.ca
- | United Kingdom: [+65] 6424-4200; www.gov.uk/world/organisations/british-high-commission-singapore
- | Australia: [+65] 6836-4100; singapore.embassy.gov.au

Singapore's Embassies or Consulates in Selected Countries

- | In the U.S.: www.mfa.gov.sg/washington
- | In Canada: [+1] 416-601-7979
- | In the U.K.: www.mfa.gov.sg/london
- | In Australia: www.mfa.gov.sg/canberra

Visa/HIV Testing

HIV testing is required to obtain a work or residence visa. Travelers, including short-term travelers, may be detained or deported after arrival if found to be positive for HIV or hepatitis.

Basic Protective Measures

Many travel-related health and safety problems can be significantly reduced through appropriate behavior by the traveler. Risk can be minimized by adherence to the following measures.

Health

Insect Precautions

- | Wear clothing that covers as much skin as practicable.
- | Apply a repellent to all exposed, nonsensitive areas of the body. Frequent application ensures continuous protection. When both repellent and sunscreen are used, apply the sunscreen first, using a product with an SPF of 30 to 50. Limited data suggest some reduction of repellency when sunscreen is applied over the repellent.
- | Use a repellent containing DEET (N,N-diethyl-meta-toluamide; 30%–35% concentration) or, alternatively, a repellent containing picaridin (20% concentration or greater for tropical destinations; also known as icaridin). Picaridin, unlike DEET, has a pleasant smell and does not dissolve plastic materials.
- | Determine the time of day and type of insects to be avoided when choosing when to apply repellent.
 - | *Applicable to malaria risk countries:* Mosquitoes that transmit malaria (*Anopheles* spp.) are generally night biters with activity between dusk and dawn.
 - | *Applicable to West Nile virus and Japanese encephalitis risk countries:* Mosquitoes that transmit these diseases (*Culex* spp.) are generally night biters but have peak activity at dusk and again at dawn.
 - | *Applicable to chikungunya, dengue, yellow fever, or Zika risk countries:* Mosquitoes that transmit these diseases (*Aedes* spp.) can bite throughout the day but have peak activity during early morning and late afternoon and evening.
 - | *Applicable to leishmaniasis risk countries:* Sandflies that transmit leishmaniasis are active from dusk to dawn, but in forests and dark rooms they may bite during the daytime if disturbed.
 - | *Applicable to African trypanosomiasis risk countries:* DEET is generally ineffective. Wear light-colored (not blue), heavyweight clothing in risk areas.
- | Treat outer clothing, boots, tents, and sleeping bag liners with permethrin (or other pyrethroid) when traveling in an area of very high risk for mosquito-borne or tick-borne diseases.
- | Sleep under a permethrin-impregnated bed net when at high risk of malaria or Japanese encephalitis if not sleeping in a sealed, air-conditioned room. Regularly check the net for rips and tears and keep it tucked in around the bed at all times. Ensure that all open windows have insect screens.
- | Use spatial repellent products in the form of an aerosol spray, vaporizer device, or smoldering coil. These products usually contain a pyrethroid (e.g., metofluthrin or allethrin).
- | Perform a full body check for ticks at least once a day when staying in areas where tick-borne disease is a risk.

Safe Food and Beverages

- | Wash hands with soap before eating and after using the toilet. If water is not available, use disposable antiseptic wipes or an alcohol-based hand sanitizer.
- | Avoid food from street vendors or market stalls.

- | Choose establishments that are known to cater to foreigners.
- | Avoid buffets if food covers or fly controls are not used or foods have not been kept steaming hot.
- | Avoid undercooked meat, seafood, and fish; unpasteurized dairy products, such as cheese, yogurt, and milk; creamy desserts; cold sauces such as mayonnaise, salad dressing, and salsas; and leafy or uncooked vegetables and salads.
- | Eat well-cooked, steaming-hot foods. Other foods that are safer to eat include breads, tortillas, crackers, biscuits, and other baked goods as well as canned foods and fruits, nuts, and vegetables with thick skins, peels or shells that can be removed.
- | Avoid tap water or anything mixed with tap water and do not rinse toothbrushes in tap water.
- | Do not use ice unless it is made from boiled, bottled, or purified water. Freezing does not kill the organisms that cause diarrhea.
- | Use sealed bottled water or chemically treated, filtered, or boiled water for drinking and making ice and for brushing teeth.
- | Drink canned, boxed, or commercially bottled carbonated water and drinks. Beer and wine are safe to drink; however, alcohol added to other beverages does not render the beverages safe.
- | Purify water if one of these options is not available (see *Treating Water*). Decide which method to use for water purification and bring along the appropriate equipment or chemicals. Do not assume that water is safe because it is chlorinated. Chlorination does not destroy all the organisms that can cause illness.
- | Continue to breastfeed infants who are nursing because it is the safest food source for these infants. If formula is used for feeding infants, prepare with boiled water and sterilized containers.

Blood-Borne and Sexually Transmitted Infections (STIs)

- | Use condoms in all sexual encounters; unprotected casual sex, whether with local residents or with fellow travelers, always poses a high risk.
- | Understand that inhibitions are diminished when traveling away from the social constraints of home; excessive use of alcohol and recreational drugs can influence behavior and encourage unintentional risk exposure.
- | Avoid sexual relations with commercial sex workers.
- | Consider short-term HIV preexposure prophylaxis with Truvada if very high-risk sexual behaviors are anticipated.
- | Avoid skin-perforating procedures (acupuncture, piercing, or tattooing).
- | Avoid invasive medical or dental procedures in unaccredited medical facilities (unless in a life-threatening situation); request proof of accreditation by Joint Commission International or other international bodies.
- | Consider carrying disposable needles, syringes, and sutures for remote travel.

Swimming and Water Exposure

- | Heed posted warnings and avoid beaches that are not patrolled.
- | Do not swim alone or after dark and do not walk on any beach after dark.
- | Avoid use of alcohol or mind-altering drugs while engaging in water sports. Avoid water where sewage contamination or algae are present. Avoid any exposure (rafting, swimming, or wading) in water known to be infected with schistosomiasis (bilharzia).
- | Scuba dive only with personnel certified by the Professional Association of Diving Instructors (PADI) or the National Association of Underwater Instructors (NAUI); use equipment only from PADI- or NAUI-certified dive operators.
- | Follow established timetables for air travel after diving. The time from the end of the dive until the boarding of an aircraft is generally between 12 and 24 hours, depending on the type of dive.
- | Decline water transportation in vessels without personal flotation devices or life jackets.
- | Wear appropriate footwear when walking, wading, or swimming to avoid injury and exposure to parasites and poisonous plants and animals.
- | Consider leptospirosis prophylaxis with 200 mg of doxycycline once per week (or 100 mg per day if in use for concomitant malaria prophylaxis) in developing countries where substantial risk of leptospirosis exists due to activities with exposure to water or wet environments (e.g., hikers, bikers, or adventurer travelers).
- | Sit on a towel, blanket, or piece of clothing if a chair or hammock is not available because sand may be contaminated in areas frequented by animals. Thoroughly shake out all fabrics after use.
- | Avoid eating amberjack, bonito, mackerel, mahi-mahi, or tuna due to risk of scombroid poisoning.

Rabies

- | Never assume that an animal or bat is free of rabies.

- Avoid entering caves due to the possibility of exposure to bats and their droppings.
- Do not handle or feed pets, unknown animals (especially dogs and monkeys), or bats. Children should be closely supervised.
- Clean any bite, scratch, or lick on broken skin immediately with soapy water; seek postexposure prophylaxis for rabies (even if rabies vaccine was completed before exposure) or herpes B virus (transmitted by monkey bites).
- Minimize running or bicycling in high-risk rabies areas to avoid provoking domestic animals.

Skin/Wound Care

Extra vigilance, as outlined below, is recommended.

- Clean any bite, cut, or broken skin with safe water. Broken skin may become infected and lead to serious problems. Apply an antiseptic solution or spray.
- Seek medical help if increasing pain, redness, or discharge from a wound occurs, which suggests a spreading infection and may require antibiotic treatment.
- Always wear hats and apply sunscreen in the tropics. Sunscreen should always be applied to skin before an application of insect repellent.
- *Applicable only to African countries:* Iron all clothes that have been dried outdoors to prevent skin infestation by the larvae of the tumbu fly.

Tuberculosis

- Practice hand hygiene diligently.
- Avoid crowded public transportation or crowded public places that are poorly ventilated.
- Move away from anyone with a persistent or intense cough.
- Screen domestic workers for tuberculosis.
- Have a tuberculosis skin test or tuberculosis blood test before departure, once per year thereafter, and upon returning home (if planning a long stay to areas of the world where TB is highly or moderately endemic).

Pretravel Checklist

- Have predeparture medical and dental exams.
- Express any concerns about jet lag, altitude illness, or motion sickness to a travel health provider, who may suggest suitable medications.
- Pack adequate supplies of necessary medications and ensure that they are securely packaged in their original, labeled prescription containers and carried in multiple places. Travelers should have a letter from a physician stating the medical condition and the medications and/or medical supplies being carried.
- Prepare a compact medical kit that includes the following: simple first-aid supplies (such as bandages, gauze, hemostatic gauze, antiseptic, antibiotic ointment, butterfly bandages, skin glue, and splinter forceps), a thermometer, antipyretic agents, antifungal creams, cough and cold remedies, antacids, hydrocortisone cream, and blister pads.
- Pack a spare pair of eyeglasses or contact lenses and adequate cleansing solution, if applicable.
- Pack sunglasses, wide-brimmed hats, sunscreen lotions, and lip protection to avoid sun exposure problems during travel.
- Arrange adequate medical and evacuation insurance when traveling, even for short trips. Ensure all preexisting medical issues are declared to the insurer so that noncovered conditions are ascertained in advance. Have the insurer's contact details recorded and accessible at all times during travel.
- Carry a list of contact information for hometown medical providers, health insurance carriers, and a medical assistance company, keeping it accessible at all times.
- Carry a list of medical conditions, allergies, and medications (with dosages).
- Carry a copy of a recent electrocardiogram on a portable USB drive or ensure that it can be accessed on the internet (for those with cardiac disease).

Safety

Safety and Crime Avoidance

Extra vigilance, as outlined below, is recommended.

- Use caution in tourist sites and crowded areas and on or near public transportation; avoid marginal areas of cities.
- Be wary of any stranger who initiates conversation or physical contact in any way, no matter how accidental it may seem.

- | Be familiar with common local scams and distraction techniques.
- | Avoid using ATMs at night.
- | Minimize visible signs of wealth in dress or jewelry.
- | Wear handbags across the chest to prevent theft.
- | Give up valuables if confronted. Money and passports can be replaced; life cannot.
- | Use taxis from official ranks or dispatched via smart phone app or radio from a reputable company.
- | Carry only a photocopy of the passport face page and legal entry stamp unless otherwise required by authorities; leave the actual passport in a hotel safe or other safe place.
- | Advise at least 1 other person of one's whereabouts and expected schedule.
- | Register a foreign trip and residence information with the Department of State at travelregistration.state.gov (U.S. citizens only), which facilitates communication and assistance in case of an emergency.

Safety in the Hotel

- | Keep hotel doors locked at all times.
- | Seek out and read fire safety instructions in the hotel room. Become familiar with escape routes upon arrival.
- | Keep valuables in the room safe or the hotel safe.

Safety while Driving

- | Do not drink and drive.
- | Avoid overcrowded transportation.
- | Keep automobile doors locked and windows closed at all times, if possible.
- | Seek vehicles with seat belts, which may result in extra expense; decline vehicles without seat belts unless no choice is available.
- | Decline transportation in vehicles with worn tires, worn brakes, or inoperative lights.
- | Avoid driving at night or alone; seek local advice before driving outside urban areas after dark.
- | Never drive a motorcycle or scooter abroad; passengers should wear a helmet.
- | If planning a long stay, arrange for local mobile phone service (either a personal phone with a local plan or a locally purchased phone) to be in the vehicle when traveling.

Other Health Information

Air Travel

Traveler Summary

Introduction

Airline travel is normally fast, convenient, and safe. However, hassles at the airport and flight delays or cancellations can cause stress; the environment in the cabin can cause discomfort; and health problems can cause inconvenience or be aggravated; long flights carry additional hazards.

Planning Ahead

There are a number of issues to consider before flying. Many of these should be discussed with the health care provider before traveling. Issues to consider include general fitness to fly, medical conditions (acute or chronic), risk of venous thrombosis, and the airline's ability to accommodate a traveler with physical disabilities and or one who needs oxygen.

Travelers going abroad should carry regular medications in carry-on luggage and wear loose, comfortable clothing and shoes.

Travelers should register with their country's government if that service is available as it may prove beneficial in case of an emergency, disaster or for evacuation coordination. Online registration is available for some countries, including, for example, the U.S. (<https://travelregistration.state.gov/ibrs/home.asp>); Canada (<http://travel.gc.ca/travelling/registration>); and Australia (<https://www.orao.dfat.gov.au/orao/weborao.nsf/Homeform?Openform>).

Fitness to Fly

Health Issues

Travelers should consult a health care provider to evaluate their fitness to fly, especially those who are pregnant, ill, have recently had surgery, have sickle cell disease or other chronic medical or psychiatric conditions, or have a history of deep vein thrombosis.

Travelers with serious health problems or disabilities should contact the airlines in advance of travel to explain the medical issue with a reservations agent who can forward the inquiry appropriately.

Persons who may require oxygen should be aware that airlines are not required to provide medical oxygen during flights. Some may require passengers to use the airline's on-board oxygen, while others may allow passengers to use their own oxygen while on the runway but require that they switch to the plane's oxygen once on board. If oxygen is needed on the ground, travelers must arrange their own oxygen supplies for the flight itself.

- | See *Pulmonary Disease and Air Travel*.

Persons with chronic medical conditions (e.g., heart or respiratory disease and other chronic disorders) should be sure that the condition is stabilized before traveling.

- | See *Cardiovascular Disease and Air Travel* and *Pulmonary Disease and Air Travel*.

Healthy persons who are prone to ear pain on descent should remember to swallow, chew, or yawn in order to facilitate free flow of air to the middle ear and sinuses. Infants should be bottle or breastfed or offered a pacifier; a warm towel against the ear is also helpful.

- | Persons who have had repeated ear or sinus pain after flying (a condition called barotrauma) should ask their health care provider about preventive medications such as oral or nasal decongestants or pseudoephedrine tablets.
- | Travelers who have recently had middle ear surgery, severe congestion, infection, or severe sinusitis should consider not flying.

Travelers who had had recent surgery (especially abdominal, neurologic, pulmonary, or eye procedures) should consult with their providers before flying.

Travelers sensitive to abdominal bloating should avoid carbonated beverages and foods that can increase gas production.

In most cases, travelers with simple colds or coughs can fly but should observe good personal and cough hygiene. Travelers with an active communicable disease (other than a mild cold or cough) should delay flying until no longer infectious. Chickenpox, measles, influenza, tuberculosis, and gastroenteritis are of particular concern.

Persons with psychiatric disorders whose behavior is unpredictable, aggressive, disorganized, disruptive, or unsafe should not travel by air. Persons with psychotic disorders who are stabilized on medication and accompanied by a knowledgeable companion may be able to fly.

Disabilities

Most countries have legislation in place to guarantee access to air travel for passengers with disabilities. However, aircraft with fewer than 30 seats are generally exempt from these requirements. Aircraft with more than 60 seats must have an onboard wheelchair, and flight attendants must help move the wheelchair from a seat to the lavatory area. However, flight attendants are not required to transfer passengers from wheelchair to wheelchair, wheelchair to aircraft seat, or wheelchair to lavatory seat. In addition, airline personnel are not obliged to assist with feeding, visiting the lavatory, or dispensing medication to travelers.

Check with the airlines regarding access and availability of oxygen, wheelchairs, etc. before flying. Travelers with disabilities who require assistance should not travel alone.

Pregnancy

- | Pregnant women who plan to fly during the last 3 months of pregnancy should carry a letter from the obstetrician indicating the baby's due date, in case airline officials request confirmation of due date.
- | In general, it is safe for pregnant women to fly up through 36 weeks' gestation, unless there are other issues that would prohibit flying.
- | Air travel during the final month of pregnancy is usually prohibited by airlines; contact the airlines about any restrictions.

Pregnant women should probably not fly if there is a risk of preterm delivery, pregnancy-induced hypertension, poorly

controlled diabetes, sickle cell trait or disease, and other serious medical conditions.

Long flights are associated with a certain degree of immobility and venous stasis (blood pooling in the legs), which present a risk of blood clots (called deep vein thrombosis or DVTs).

- | Consider wearing compression stockings.
- | When possible, sit in an aisle seats so it is easier to get up and walk.
- | Wear airline seat belts low around the pelvis.
- | For more information, see *Pregnant Travelers*.

Infants and Children

While healthy, full-term newborns are usually able to fly without any problem, some airlines have a minimum age limit, generally age of 1-2 weeks. Some airlines may require a medical clearance letter for children younger than 2 weeks. Contact the airlines for requirements.

- | On flights within the U.S., children 2 years and older must have a separate ticket and sit in their own seat.
 - | Children who weigh less than 18 kg (40 lb) should use an approved child-restraint seat (CRS). To assure that a seat is available to use the CRS, a ticket would be needed for these children. (See *Children and Travel*.)
- | On international flights, requirements vary.
 - | Children 2 years and older must purchase an airline ticket for a separate seat. Requirements vary on the need to purchase a ticket for an infant younger than 2 years. Call the airlines for details.
 - | A CRS must be used for any child in their own seat who is unable to sit unsupported; some airlines require a CRS for all children under a certain weight occupying their own seats.
 - | Some airlines provide a sleeping bassinet for infants up to 14 kg (31 lb) for use in-flight.
- | A child held in one's lap must be held without any additional tie-ins or restraints during taxi, take-off, and landing.

Infants and toddlers often have bouts of ear infection, which can increase the risk of ear pain, especially during descent.

- | Ear pain may be lessened by yawning, chewing, swallowing, or sucking on a pacifier. A warm towel over the ear may also help.
- | Pseudoephedrine, antihistamines, and other decongestants are banned for use in children younger than 4 years in the U.S. and younger than 6 years in Canada. There is little evidence of their effectiveness in children younger than 12 years, and many expert pediatricians recommend against their use in children younger than 12 years due to the potential for side effects.

In-flight sedation for young children is not recommended.

- | Diphenhydramine and dimenhydrinate, which had been used for this in the past, are not recommended in children younger than 12 years.
- | For motion sickness, scopolamine is an option for children 12 years and older.

Flying After Diving

Flying too soon after diving carries the risk of decompression sickness. Persons who fly after diving should follow the guidelines below.

- | Wait 12 hours after a non-decompression dive before flying.
- | Wait 24 hours or more after a dive requiring a decompression stop.
- | Wait 18-24 hours or more for if making multiple dives each day for several days.

In-Flight Issues

Cabin Environment

Commercial aircraft have lower oxygen levels, which can cause problems for travelers with severe cardiac or respiratory disease (see *Cardiovascular Disease and Air Travel*). These persons should consult with their health care provider to evaluate fitness to travel and the need for supplemental oxygen or other special assistance while flying. Medical oxygen can be arranged with most airlines. Preapproved portable oxygen generators may be used on-board. Check with the carrier several days in advance of the flight.

Rarely, airborne diseases have been transmitted to in-flight travelers within a 2 seat range (in back, front, and beside) of an

infectious traveler. Since transmission of respiratory and gastrointestinal pathogens is by direct contact, travelers should be reminded to wash their hands frequently and thoroughly (or use an alcohol-based hand sanitizer containing at least 60% alcohol), especially after using the toilet and before preparing or eating food, and to cover their noses and mouths when coughing or sneezing.

Humidity in the cabin is usually low. Travelers should stay hydrated by drinking water and limiting consumption of alcohol, tea, and coffee; wearing glasses instead of contact lenses; and using a skin moisturizer and eye drops.

Ionizing radiation levels in flight vary with altitude and latitude but may be 6 times higher at cruise altitudes of 12,000 m (40,000 ft), as compared to sea level. Frequent flyers such as business travelers or cabin staff would need to fly at least 2,000 hours a year to exceed the internationally recommended ionizing radiation limit. However, pregnant women should be advised to limit flying on subsonic aircraft to less than 200 hours during the pregnancy to reduce exposure.

Disinsection

Some countries, but not the U.S., require disinsection of all or certain inbound flights. This is done in 1 of 3 ways:

- ▮ Spraying the interior of the aircraft cabin with insecticide while passengers are still on the plane. There is no evidence that this causes skin problems or exacerbates asthma.
- ▮ Spraying the aircraft with insecticide with no passengers on board.
- ▮ Treating the interior surfaces of the aircraft with an insecticide (permethrin) while passengers are not on board. The levels of permethrin in cabin air after application are so low as to be of no threat to passengers. Most airlines use this method.

Travelers can check on disinsection requirements with the travel agent or airline.

Sleep Deprivation and Jet Lag

On flights that cross 3 or more time zones, sleep deprivation can be a significant problem, especially for business travelers. Lack of sleep can affect attention, memory, reasoning, and mood, leaving the traveler open to errors of judgement and a variety of other risks.

Jet lag contributes to sleep deprivation because the mismatch in time clocks makes for disturbed or fragmented sleep. Jet lag is worse after eastward flights.

Preventive strategies include adjustment of sleep patterns, timed exposure to bright light, use of melatonin, and careful use of a hypnotic or stimulant. In addition, travelers should resist the temptation to sleep during daytime hours for the first few days at destination; this decreases one's ability to sleep at night and prolongs the adjustment cycle.

Sedatives are no longer recommended on airline flights due to the risk of blood clots in the legs during prolonged immobility.

Melatonin and Timed Light Exposure

The body normally has a cycle in which melatonin (a natural hormone that aligns sleep cycles) reaches peak blood levels at around 2:00 a.m. When crossing time zones, this peak needs to be shifted to avoid symptoms of jet lag: sleep disturbances, daytime fatigue, weakness, headache, sleepiness, and irritability. Most symptoms disappear by the fifth day after traveling across a 6-hour time zone. It is difficult to compensate for jet lag for trips shorter than 3 days, and some would advise against attempting to do so.

Complicated melatonin regimens have been described but most are impractical. In principle, for travelers flying eastward, 0.5-5 mg melatonin (the optimal dose has not been determined) should be taken at destination bedtime, followed by exposure to bright light early the following morning, maintaining the regimen until fully adapted. Travelers flying westward should be exposed to bright light in the early morning. A commercial light box may be used if there is no access to natural light. Even ordinary room light may helpful.

Cautions regarding melatonin:

- ▮ Melatonin can produce sleepiness and reduced alertness. Persons taking melatonin should not drive, operate heavy machinery, or perform tasks requiring alertness for 4 to 5 hours after taking melatonin.
- ▮ Persons who suffer from psychiatric problems or migraine headaches or who are pregnant or intend to become pregnant should use melatonin with caution, if at all.
- ▮ Melatonin is considered a food supplement in the U.S., and is unregulated by the FDA as to actual content of active ingredient. Travelers should consult their physicians regarding its use.

Zolpidem (Ambien) and Other Hypnotics

Zolpidem is as effective as melatonin in reducing jet lag symptoms. Zolpidem can be used to induce sleep at the destination sleeping time, for up to 2-3 nights. It can also be used for 2-3 nights after returning home, to induce sleep at the home sleeping time.

Zolpidem comes in a standard formulation and an extended release formulation.

- | Some persons may experience next-morning impairment in activities that require full alertness (e.g., driving), regardless of which formulation is used.
- | Extended release zolpidem can result in day-long impairment in activities that require full alertness.
- | Use the lowest effective dose.
- | Women have a slower clearance rate than men so lower doses are recommended. See below.

Recommended dosage:

- | Women: 5 mg standard formulation or 6.25 mg extended release formulation.
- | Men: 5 or 10 mg standard formulation or 6.25 or 12.5 mg extended release formulation.

Sedatives are no longer recommended on airline flights due to the risk of blood clots in the legs during prolonged immobility.

Other Ways to Reduce Jet Lag

- | Choose daytime flights to minimize loss of sleep and fatigue.
- | Avoid large fatty meals, caffeine, and alcohol during the flight.
- | Drink lots of water.
- | Get regular exposure to daytime outdoor light or high intensity artificial light.
- | Caffeine may combat daytime drowsiness.

Travelers' Thrombosis

Deep vein thrombosis (blood clots in the leg veins) can occur during or after flying. Factors that can lead to the formation of blood clots include the length of the flight, inactivity during the flight, and personal risk factors. Prevention is vitally important.

- | During long flights, blood flow in the legs is reduced and can contribute to the formation of clots.
- | Inactivity during flight may be as important as the length of the flight.
 - | Travelers should sit in an aisle seat, if possible, making it easier to get up and walk around.
 - | Avoid sleeping, if possible, as sleeping increases the risk of blood clots by 10% for every hour slept.
 - | Flying business class reduces risk only slightly. The potential benefits of flying business class (more cabin space, easier access to the aisle, and more comfortable seating) are lost if the passenger does not make use of them to walk and exercise.
- | Dehydration and dry cabin atmosphere may contribute to risk.

Personal risk factors for blood clots include:

- | Older than 50 years
- | Obesity
- | Very tall or very short in height
- | Late pregnancy and the first 6 weeks after giving birth
- | Chronic venous insufficiency or large varicose veins
- | Coagulation disorders
- | Smoking tobacco
- | Late pregnancy and the first 6 weeks after delivery
- | Chronic inflammatory disease
- | Medication that contains hormones (e.g., oral contraceptive, female hormone replacement, anti-estrogen therapy)
- | Personal or family history of blood clots
- | Surgery within the past 4-6 weeks
- | Significant trauma or prolonged immobilization (e.g., due to a cast on the leg) within the last 6 weeks
- | Cancer within the last 2 years or currently receiving chemotherapy
- | Failure to take preventive measures

Prevention

Travelers flying for more than 4-6 hours:

- | Wear comfortable, loose-fitting clothing that is not tight at the knees or waist.
- | Walk around the cabin hourly, if possible. This is easiest from an aisle seat.
- | Stand and perform stretching exercises.
- | Exercise the calf and thigh muscles by flexing and extending the ankles and knees while seated.
- | Avoid sitting with legs crossed.
- | Use a footrest when possible to reduce pressure on the backs of the thighs or calves.
- | At transit stops, get up and walk around.
- | Drink enough water to maintain a flow of pale lemon-colored urine.
- | Avoid excess alcohol as it may cause sleepiness.
- | Avoid sleeping pills and sedatives.
- | If taking blood thinners (e.g., Coumadin, warfarin), have clotting times checked before flight.

Travelers flying for 8 hours or longer:

- | The traveler should ask his or her physician about the value of low-dose heparin if there is a personal history of blood clots.
- | At-risk passengers should wear graded compression stockings that fit well and exert 20-30 mmHg at the ankle.

Children and Travel

Traveler Summary

Overview

When planning travel with children, parents should discuss the risks and benefits of such travel with their child's health care provider or a travel medicine specialist. A pretravel health assessment is an important first step. Children have the same travel-related risks that adults have, but they are more prone to diarrhea, parasitic skin infections, and animal bites and are more likely to require hospitalization if they become ill. Prevention of intestinal infection and rapid initiation of oral rehydration supplementation to treat diarrhea should be a high priority in infants and children because they dehydrate more quickly (and have more serious consequences) than adults do. Dengue and malaria are more serious in young children; therefore, personal protective measures should be emphasized. Despite the magnitude of Zika virus outbreaks and its association with birth defects, such abnormalities have not been reported in infants with postnatal Zika virus infection.

In addition to addressing health and safety issues, parents should plan an itinerary and pace that allow time for age-appropriate activities, adequate rest, and regular feeding and sleeping schedules. Parents should also consider destination-appropriate methods for transporting young children, such as using backpacks rather than strollers.

Air Travel

Check with the airlines to see if they have a minimum age for flying. Some airlines have a minimum age requirement (e.g., age of 1-2 weeks) and may require a medical clearance letter for children younger than this age. Also ask about the need to purchase a separate seat ticket for the child and requirements for the use of child-restraint seats. See *Air Travel*.

A lap child must be held without any additional tie-ins or restraints during taxi, take-off, and landing. Infants and toddlers usually have poor inner ear tube function and often have bouts of otitis media, which can increase the risk of ear pain, especially during descent. Many expert pediatricians do not recommend the use of decongestants for children younger than 12 years to prevent ear pain, due to potential side effects. If the child experiences ear pain while flying, yawning, chewing (gum or sweets), swallowing (bottle or breastfeeding for infants), sucking on a pacifier, drinking from a cup, or placing a warm towel over the ear can help relieve the pain.

In-flight sedation for young children is not recommended. Speak to the child's health care provider for options to prevent motion sickness in children 12 years and older.

Activity books, personal electronics, games, and toys as well as nutritious snacks and beverages should be readily available when traveling with children. Call the airline in advance (48 hours) to order special meals for children if needed.

Diarrhea and Dehydration

Children, especially infants, are more susceptible than adults to travelers' diarrhea and are at greater risk of becoming severely and quickly dehydrated.

Pay meticulous attention to food and water precautions (see *Food and Beverage Precautions*) and plan ahead to obtain safe water for formula and food preparation. Careful handwashing, use of antiseptic wipes, and regular cleaning of pacifiers and toys are vital. For infants, breastfeeding during the trip is an optimal strategy if appropriate and feasible.

If a child becomes dehydrated, oral rehydration solution (ORS) is the best treatment. ORS is often available in pharmacies in developing countries, but parents should carry their own ORS packets to be reconstituted with the correct amount of safe water. Some parents prefer to carry a few bottles of already reconstituted solutions, such as Pedialyte. Homemade sugar and salt solutions are not recommended. Sports drinks do not contain adequate electrolytes and should be avoided, although any liquid is better than none until ORS can be obtained. Most traditional ORS products taste salty, but flavoring makes some more palatable (e.g., rice-based Ceralyte and Gastrolyte). A child who is vomiting may rehydrate successfully with frequent, small sips, spoonfuls, or syringefuls of an ORS. Reconstituted ORS held at room temperature should be discarded after 12 hours; reconstituted ORS that has been kept refrigerated must be discarded after 24 hours.

- ▮ In general, an infant (who is not severely dehydrated) weighing less than 10 kg (22 lb) should receive 2 to 4 ounces of ORS for every loose stool or vomiting episode; give 4 to 8 ounces to children weighing more than 10 kg.
- ▮ Immediate medical care is imperative if the infant or child shows signs of severe dehydration, bloody diarrhea, fever greater than 38.5°C (101.5°F), or persistent vomiting. Continue to give ORS while seeking medical care.

In addition to rehydrating the child, antibiotics may be used in some cases. Ask the health care provider about the merits of carrying an antibiotic for use in children and for instructions on when it should be used.

Other drugs, such as loperamide, can be used in some children 2 years and older; it should not be used in children younger than 2 years or in children who are malnourished, very dehydrated, ill, or with bloody diarrhea. Bismuth subsalicylate (Pepto Bismol) is not recommended for children younger than 12 years and should be used with caution in older children and adolescents with a viral infection (e.g., influenza or chickenpox). Discuss these options with the health care provider, especially regarding proper dosing. See *Travelers' Diarrhea*.

During recovery, a normal diet should be introduced as quickly as the child will accept it.

Immunizations

Plan a visit to the children's health care provider well before the time of departure to allow a full assessment of the need for immunizations. Children should be up-to-date on all childhood vaccinations and should be immunized for diseases that might present a risk during travel.

Malaria Prevention

All children traveling to malaria risk areas, including young infants and breastfed infants, should use personal protection methods against mosquito bites (see *Insect Precautions*) and take antimalarial drugs (see *Malaria*). Young children should avoid travel to areas with *P. falciparum* unless they can take a drug that is highly effective (see *Malaria*). Attention to the correct dosage, which is based on weight, is critical because many antimalarials have narrow toxicity ranges. Antimalarial medicines should be stored in childproof containers and out of reach of children to avoid accidental overdose.

In younger children, a weekly dosed drug (such as mefloquine) is more convenient to administer. The health care provider can provide tips on how to improve adherence to the antimalarial medicine (e.g., how to hide the bitter taste or facilitate the swallowing of a tablet). Preventive treatment for malaria should begin 2 to 3 weeks before travel to a malarious area if using mefloquine, 1 week before travel if using chloroquine, and 1 day before travel if using doxycycline (for children 8 years and older) or atovaquone-proguanil (may be multiple tablets per day).

Mefloquine, chloroquine, and doxycycline must be taken regularly while in the malarious area and continued for 4 weeks after exposure ends. Atovaquone-proguanil (Malarone) must be taken regularly while in the malarious area and continued for 1 week after exposure ends.

Breastfeeding

Women who are breastfeeding can receive all vaccines, with the exception of yellow fever vaccine. A regular breastfeeding schedule should be maintained for the infant while traveling.

The infant must be protected and should be immunized according to the recommended schedule/itinerary. However, for some diseases (e.g., yellow fever, measles, and meningococcal meningitis), the infant cannot be immunized at birth, different minimum ages apply for each vaccine, and the infant does not gain protection through the mother's breast milk, all of which must be taken into consideration when planning travel to areas where these infections may be a risk.

Mefloquine and chloroquine are considered safe for malaria prevention while breastfeeding. Breastfeeding infants weighing more than 5 kg (11 lb) while taking atovaquone-proguanil (Malarone) is acceptable. However, any of the antimalarial medicines taken by the mother will not protect the infant against malaria, and the child must be given his or her own medication.

A nursing mother with travelers' diarrhea should continue to breastfeed but must increase her fluid intake. Breastfeeding children with diarrhea should increase their frequency of feeding and should not be offered food or fluids to replace breastfeeding. Use of azithromycin or loperamide by the nursing mother is considered to be compatible with breastfeeding.

Environmental and Insect Protection

Environmental Issues

Children should avoid temperature extremes while traveling, wear hats with substantial protection, wear light-colored, protective cotton clothing, and use sunscreen frequently. Children, particularly infants and toddlers, are at high risk for heat-related illness; therefore, parents should monitor their activity levels, keep them in the shade, and administer sufficient fluids.

When contemplating taking young children to altitude, parents should be aware that preschool-aged children and younger, especially preverbal children, will not be able to communicate how they are feeling and will need to be observed closely for signs such as irritability, nausea, or vomiting. See *Altitude Illness*.

To prevent certain skin infections (such as hookworm), children should wear protective footwear, avoid walking barefoot in rural areas of the tropics, and avoid playing directly on the ground or beach. Snake bites and jelly stings can be more severe in children than in adults.

Animal bites are more common in children than in adults and may not always be apparent. These wounds can still result in rabies and require a series of postexposure vaccinations. Children should be taught to avoid animals (especially dogs in developing countries) and to report to their parents if they have touched any kind of animal.

Insect Precautions

Either DEET or picaridin-containing repellents can be used in children 2 months and older. The maximum concentration of DEET that should be used in children is 30%. Picaridin is equally protective and has the same duration of protection as DEET when used at the same concentration. However, no information exists on the maximum concentration of picaridin for children. Concentrations of less than 20% are thought to be inadequate for prolonged protection and require more frequent application. Avoid applying repellent to the child's eyes and mouth. Do not apply to children's hands because they frequently put their hands in their mouths. If breastfeeding, do not apply insect repellent to the nipple area, to prevent ingestion of the repellent by nursing children. See *Insect Precautions*.

When both sunscreen and repellent are used, sunscreen should be applied first. Products containing both repellent and sunscreen should not be used. Mosquito nets can help protect infants during the day while in a crib or stroller.

Medications

Families traveling with children should carry a medical kit for the management of medical problems encountered during travel (see *Packing Personal Medications and Supplies*), as well as any medications used regularly by the child. Carry a copy of any prescriptions used and bring along the original container. Certain prescription drugs, such as amphetamines used to treat attention-deficit hyperactivity disorder (ADHD) and some over-the-counter drugs, such as common pediatric cold preparations, may not be brought into some foreign countries. A thermometer to assess illness severity should always be at hand.

Safety and Security

Because safety standards in some countries may differ from those at home, parents should maximize the safety of the surrounding environment and be extra vigilant. Injuries are responsible for far more deaths during international travel than are infectious diseases. Important precautions parents can take include:

- ▮ Carrying a photograph of their child, as well as a digital version on their cell phone, in case the child gets lost.
- ▮ Establishing an age-appropriate plan for their child in case the child gets separated from them.

- | Labeling the inside of clothing of younger children. Personal identification should not be visible, to prevent strangers from greeting children by name.
- | Having older children carry identification and a home, cell, or hotel phone number at all times.
- | Child-proofing hotels, homes, and play areas.
- | Direct parental monitoring in all hotel and resort areas because enclosed fenced areas for swimming pools may be absent.
- | Examining standards for safety from a child's point of view before any activity.
- | Bringing car seats for young children, although the adequacy of the fastening system in local vehicles may be deficient.
- | Bringing personal flotation devices from home.
- | Bringing bike helmets from home.
- | Cautioning adolescents about engaging in body piercing, tattooing, and casual sexual activity in high-risk foreign countries.
- | Discouraging adolescents from unaccompanied activities in urban areas, especially at night.
- | Carrying a letter from a nonaccompanying parent, whether married or divorced, giving permission for the child to travel and consent for any necessary medical care.

Food and Beverage Precautions

Traveler Summary

Introduction

Guaranteeing the safety of food and beverages is difficult if not impossible when traveling, especially in developing countries. Without strict public health standards, bacteria or parasites in food or water may go undetected and cause illness such as travelers' diarrhea.

However, travelers can continue to enjoy local foods, which is part of the pleasure of international travel. Although some evidence exists to suggest that *where* food is eaten is more important than *what* food is eaten, observing food and water precautions helps decrease the number of organisms ingested and the severity of travelers' diarrhea if contracted. These precautions also help reduce the risk of other infections, such as dysentery, hepatitis A and E, giardiasis, typhoid, and paratyphoid.

In developed countries, clean drinking water is available from the tap, and breakdowns in the system are rare. Developing countries, however, don't always have the resources needed to ensure a pure water supply; consequently, tap water is not safe to drink. Even if the local population can drink the water, travelers should not assume that they can. Residents have built up some immunity to organisms in the water, but visitors have not. As a result, tap water can make travelers sick.

Although it may not be possible to avoid diarrhea in certain high-risk destinations, even with the strictest adherence to preventive measures, the risk can be minimized by following the guidelines below when traveling through areas with less than adequate sanitation or with water sources of unknown purity.

Food Precautions

Wash hands with soap before eating and after using the toilet. If water is not available, use disposable antiseptic wipes or alcohol-based hand sanitizer. Choose establishments that are known to cater to foreigners or that are specifically known by other foreigners to be safe. Foods that are safer to eat include breads, tortillas, crackers, biscuits, and other baked goods, as well as canned foods and fruits, nuts, and vegetables with thick skins, peels, or shells that can be removed. Food should be well-cooked and served steaming hot.

Avoid food from street vendors or market stalls. Avoid leafy or uncooked vegetables and salads. Some organisms in soil and water are not destroyed by normal cleaning methods. Beware of garnishes, which are typically uncooked vegetables, fruits, or herbs.

Avoid undercooked, raw, or cold meat, seafood, and fish, including large carnivorous fish (especially from reef areas because many contain concentrated toxins). See *Seafood Poisoning*.

Avoid unpasteurized dairy products such as cheese, yogurt, and milk. Be particularly wary of ice cream and other frozen confections that may have been made or stored in contaminated containers. Also avoid creamy desserts, custards, or sauces that may not have been adequately refrigerated, as well as cold sauces such as mayonnaise, salad dressing, chutneys, or salsas, which are usually raw and made by hand.

Avoid buffet foods such as lasagna, casseroles, and quiches, unless they are known to be fresh (not reheated) and have been kept steaming hot. Avoid buffets with no food covers or fly controls.

Continue to breastfeed infants because breastmilk is the safest food source for such infants.

Beverage Precautions

Use sealed bottled water or chemically treated, filtered, or boiled water for drinking and for brushing teeth. Drink beverages made only with boiled water whenever possible (such as hot tea and coffee). Water boiled (at or near sea level) for any length of time (even 1 minute) is safe to drink.

Drink canned, boxed, or commercially bottled carbonated water and drinks. International brands are safest. Beware of unsealed containers that may have been refilled. Beer and wine are safe to drink; however, alcohol added to other beverages does not render the beverages safe.

Purify water (see *Treating Water*) if one of these options is not available. Decide which method to use for water purification and bring along the appropriate equipment or chemicals. Carry safe water if going out for the day in an area where availability of safe water is not assured. Do not assume that water is safe because it is chlorinated. Chlorination does not destroy all the organisms that can cause illness.

Avoid tap water or anything mixed with tap water and do not rinse toothbrushes in tap water. Do not drink fruit juice unless it comes directly from a sealed container; otherwise, it may have been diluted with tap water. Do not drink from wet cans or bottles because the water on them may be contaminated. Dry wet cans/bottles before opening and clean all surfaces that will have contact with the mouth. Do not use ice unless it is made from boiled, bottled, or purified water. Freezing does not kill the organisms that cause diarrhea.

If formula is used for feeding infants, prepare with boiled or distilled water and use sterilized containers.

Insect Precautions

Traveler Summary

In the tropics, insects and other biting vectors can transmit significant illnesses (such as chikungunya, dengue, malaria, rickettsial disease, yellow fever, and Zika), which may be potentially life threatening. These diseases are preventable with the use of personal protective measures. In some cases (e.g., malaria or yellow fever), a preventive drug or vaccine is also available, but these should be used with the personal protective measures discussed below.

Personal Protective Measures

Travelers should:

- | Wear clothing that covers as much skin as practicable.
- | Apply a repellent to all exposed, nonsensitive areas of the body. Frequent application ensures continuous protection. When both repellent and sunscreen are used, apply the sunscreen first, using a product with an SPF of 30 to 50. Limited data suggest some reduction of repellency when sunscreen is applied over the repellent.
- | Use a repellent containing DEET (N,N-diethyl-meta-toluamide; 30%–35% concentration) or, alternatively, a repellent containing picaridin (20% concentration or greater for tropical destinations; also known as icaridin). Picaridin, unlike DEET, has a pleasant smell and does not dissolve plastic materials.
- | Determine the time of day and type of insects to be avoided when choosing when to apply repellent.
 - | *Applicable to malaria risk countries:* Mosquitoes that transmit malaria (*Anopheles* spp.) are generally night biters with activity between dusk and dawn.
 - | *Applicable to West Nile virus and Japanese encephalitis risk countries:* Mosquitoes that transmit these diseases (*Culex* spp.) are generally night biters but have peak activity at dusk and again at dawn.
 - | *Applicable to chikungunya, dengue, yellow fever, or Zika risk countries:* Mosquitoes that transmit these diseases (*Aedes* spp.) can bite throughout the day but have peak activity in the early morning and late afternoon and evening.
 - | *Applicable to leishmaniasis risk countries:* Sandflies that transmit leishmaniasis are active from dusk to dawn, but in forests and dark rooms they may bite in the daytime if disturbed.
 - | *Applicable to African trypanosomiasis risk countries:* DEET is generally ineffective. Wear light-colored (not blue), heavyweight clothing in risk areas.

- ┆ Treat outer clothing, boots, tents, and sleeping bag liners with permethrin (or other pyrethroid) when traveling in an area of very high risk for mosquito-borne or tick-borne diseases.
- ┆ Sleep under a permethrin-impregnated bed net when at high risk of malaria or Japanese encephalitis if not sleeping in a sealed, air-conditioned room. Regularly check the net for rips and tears and keep it tucked in around the bed at all times. Ensure that all open windows have insect screens.
- ┆ Use spatial repellent products in the form of an aerosol spray, vaporizer device, or smoldering coil. These products usually contain a pyrethroid (e.g., metofluthrin or allethrin).
- ┆ Perform a full body check for ticks at least once a day when staying in areas where tick-borne disease is a risk.

Insect Repellents and Insecticide-Treated Clothing

The most effective repellents contain DEET or picaridin. Picaridin is considered to have comparable efficacy and duration of protection to DEET at the same concentration. Both compounds have been shown to be effective (under actual field conditions in tropical countries) against both *Anopheles* and *Aedes aegypti* mosquitoes.

Besides DEET and picaridin, the U.S. Environmental Protection Agency has registered 3 other active ingredients as repellents, but fewer studies have been conducted (compared to DEET and picaridin) to examine their efficacy. Common insect repellent brands for each active ingredient include:

- ┆ DEET: Off! Deep Woods Sportsmen, 3M Ultrathon lotion, Repel, Sawyer Ultra 30 lotion, Ben's Eco Spray, Cutter Backwoods, Sunsect
- ┆ Picaridin: Natrapel and Sawyer's Picaridin Insect Repellent
- ┆ IR3535 (chemical name: 3-[N-butyl-N-acetyl]-aminopropionic acid, ethyl ester): Bullseye, Avon's Skin So Soft Bug Guard Plus Expedition, and Coleman's SkinSmart
- ┆ Oil of lemon eucalyptus (OLE) or PMD (chemical name: para-menthane-3,8-diol), the synthesized version of OLE: Repel and Off! Botanicals
- ┆ 2-undecanone (chemical name: methyl nonyl ketone): BioUD

The following repellent products are approved for use by the U.S. Department of Defense.

- ┆ DEET: Ultrathon lotion (34%), Ultra 30 lotion (30%), Cutter Backwoods (25%), and Sunsect (20% plus SPF 15 sunscreen)
- ┆ Picaridin: Natrapel (20%)
- ┆ IR3535: Bullseye
- ┆ Sulfur: Chigg Away (10%) for chiggers

An increasing number of botanical repellents containing eucalyptus, citronella, soybean oil, geranium oil, and castor oil are marketed. Limited data suggest that these may be adequate alternatives to DEET or picaridin.

Use of brand names is for informational purposes only and does not constitute preference for one brand over another.

Duration of protection: With both DEET and picaridin, increasing repellent concentration increases the duration of effectiveness. With DEET, the effect on duration of protection plateaus at about 50% concentration. Products with less than about 20% picaridin or DEET have a relatively short duration of protection. The optimal concentration of DEET is considered to be 30% to 35%. When used by tropical travelers in appropriate concentrations (i.e., 20% or greater), DEET and picaridin should be applied every 4 to 6 hours. Ultrathon (34% DEET) and Sawyer's Ultra 30 (30% DEET) controlled-release lotion formulation provides protection for 10 to 12 hours.

Use in children: Both DEET and picaridin-containing repellents can be used in children 2 months and older. The maximum concentration of DEET that should be used in children is 30%. No information exists on the maximum concentration of picaridin for children. IR3535 can be used in children 6 months and older, and OLE can be used in children 3 years and older.

Use in pregnancy and breastfeeding: Pregnant women and their babies are at special risk from the consequences of vector-borne diseases. Clothing should cover as much skin as practicable, leaving only extremities, head, and neck exposed. DEET and picaridin can be used by pregnant and breastfeeding women but should not be applied directly to the nipple area to prevent ingestion by breastfeeding children. DEET has been shown in 1 short-term study to be safe in the second and third trimesters of pregnancy when used at concentrations of 20% or lower; however, the use of DEET in the first trimester has not been well studied. Although no evidence exists that the use of DEET or picaridin by pregnant or lactating women poses a health hazard to unborn babies or children who are breastfeeding, no long-term follow-up studies are available.

Safety: DEET is effective against mosquitoes, ticks, fleas, and chiggers and is a remarkably safe insect repellent. Only 30 cases of severe toxicity have been reported among billions of uses over 30 years. Most cases of toxic encephalopathy or

seizures were reported in young children in whom excessive amounts were used over prolonged periods. No long-term information is available on the use of picaridin, but toxicity tests in animals have shown it to be extremely safe.

The following precautionary measures can minimize the possibility of adverse reactions to insect repellents containing DEET or picaridin:

- | Use repellents according to label directions.
- | Apply repellents sparingly and only to exposed skin.
- | Repellents should not be inhaled or ingested, and contact with the eyes should be avoided.
- | Avoid applying repellents to portions of children's hands that are likely to have contact with eyes or mouth.
- | Never use repellents on wounds or irritated skin.
- | Wash repellent-treated skin if no further risk exists of exposure to insects.
- | Wash treated skin and seek medical attention if a suspected reaction to insect repellent occurs.

Use a pyrethroid-containing aerosol spray, vaporizer device, or smoldering coil in living and sleeping areas during evening and nighttime hours.

Permethrin is an insecticide licensed for use on clothing, bed nets, sleeping-bag liners, and outdoor gear to repel mosquitoes and biting flies and to kill (through contact toxicity) crawling arthropods such as ticks, chigger mites, fleas, and lice. Permethrin is available as a spray or as a liquid for complete immersion of the fabric to be treated. Permethrin physically binds to fabric (cotton or 50% cotton/nylon blend), retaining repellency even after 50 washings. To maintain contact toxicity and maximum protection, consider retreating clothing every 6 weeks or after every sixth laundering. Clothing treated with permethrin only provides protection on the covered portion of the body; therefore, a repellent applied to exposed skin should also be used. Permethrin is poorly absorbed through the skin, although sunscreens and other products may increase the rate of skin absorption. Another pyrethroid, deltamethrin liquid, is available in some countries.

Motion Sickness

Traveler Summary

Summary

Anyone who's ever experienced a bout of motion sickness during ground, air, or water travel knows the feeling: vague discomfort becomes nausea, the face pales, and sweat beads form. Lightheadedness and exhaustion may be followed by vomiting. Some people are more prone to this condition than others, but factors such as turbulence, anxiety, and illness can also trigger motion sickness.

The human body has a delicate system of equilibrium that relies on fluids in the inner ear, visual sensors and other physical input to maintain a sense of balance. When incoming signals are in conflict—for example, when the body is at rest yet the eyes sense movement—this system is disturbed, causing the symptoms of motion sickness.

Preventive Behaviors

- | Eat lightly before and during travel. Don't drink alcohol.
- | Sit in the most stable section of a moving vehicle to decrease motion sickness symptoms. The best seats? Over the wings on an airplane; in the front seat of a car; near the front of trains; amidships, on deck if possible; and just forward of the midsection on buses.
- | Face forward and look out a window, keeping eyes fixed on the horizon or a stationary point in the distance. Stay as still as possible, and avoid any rapid head movement.
- | Sleep, if possible. If not, it may help to wear dark glasses or close eyes to reduce visual stimulation.

Medications for Prevention and Treatment

- | Antihistamines can prevent or relieve motion sickness. Because it is easier to prevent motion sickness than it is to stop it, medication should be taken 60 minutes before travel and continued during the trip. Four over-the-counter medications that are approved for this use in the U.S. are cyclizine (e.g., Marezine), dimenhydrinate (e.g., Dramamine), diphenhydramine (e.g., Benadryl), and meclizine (e.g., Bonine). Side effects may include drowsiness, dizziness or dry mouth. Antihistamines should not be used by anyone with glaucoma, breathing problems such as asthma, or urinary difficulties caused by an enlarged prostate. Check labels carefully for appropriate dosages, precautions and age restrictions.

- Some people may require prescription drugs such as scopolamine if over-the-counter medications are not effective. This option should be discussed with a health care provider, including possible drug interactions.

Children

- Children are more prone to motion sickness than adults are. For symptomatic treatment of motion sickness, dimenhydrinate or diphenhydramine may be considered. The first dose should be given 1 hour before travel and then every 6 hours. A test dose should be given in advance, as this medication can cause excitability rather than drowsiness in some children. The other advice that applies to adults is valid for kids, with 1 exception: the front seat of a car is not safe. Make sure children are secured in the back seat with a seat belt or child car seat. Give them sunglasses to wear, and make a game out of watching a fixed object on the horizon.

Travelers' Diarrhea

Traveler Summary

Key Points

- Travelers' diarrhea (TD), the most common health problem for travelers, is an intestinal infection affecting up to 70% of travelers going to developing countries.
- Risk is higher for young adults, persons with underlying illnesses, and those taking medicines that decrease gastric acidity.
- Symptoms can vary from mild to severe and can include uncomfortable, crampy diarrhea with nausea or vomiting; fever sometimes occurs. Significant dehydration is uncommon in adults.
- Consequences of infection may include persistent diarrhea, recurrent diarrhea, and other chronic gastrointestinal discomfort.
- Prevention includes observing food and beverage precautions and hand-hygiene measures and treating water.
- No vaccine is available in the U.S., and preventive antibiotics are not recommended. A vaccine with limited effectiveness is available in some countries but is not recommended.
- Self-treatment includes fluid rehydration and antimotility or antisecretory agents. Travelers should reserve the use of antibiotics for severe diarrhea.

Introduction

TD is the most common health problem for travelers, affecting up to 70% of travelers going to some developing countries. TD is caused primarily by bacteria (uncommonly by parasites or viruses) acquired through consumption of contaminated food or beverages. TD is characterized by the sudden onset of abnormally loose or liquid stools, such that the illness is either tolerable, interferes with many planned activities, or is incapacitating and prevents all planned activities. TD is usually a self-limiting disease that resolves in 3 to 4 days, but strategies are available to self-treat and shorten the duration of symptoms.

Risk Areas

The traveler's destination is the most important determinant of risk. TD can be acquired whenever people from countries with a high level of hygiene travel to countries with a low level of hygiene. Developing countries in Africa, Asia, Latin America, and the Middle East are considered high risk. Most countries in southern Europe and a few Caribbean islands are deemed intermediate risk. Low-risk areas include Australia, Canada, northern Europe, Japan, New Zealand, the U.S., and several of the Caribbean islands.

Transmission

Poor sanitation, the presence of stool in the environment, and the absence of safe restaurant practices lead to risk of diarrhea from eating a variety of foods contaminated by fecal organisms, especially bacteria. Because travelers are usually careful to avoid drinking untreated water, many acquire TD from eating contaminated food. In long-stay travelers and expatriates who tend to eat adventurously for longer periods of time, parasites can account for 10% to 20% of diarrhea. Persons with a vomiting predominant illness, with or without diarrhea, may have a norovirus infection (especially if other close individuals have a similar illness) and are highly infectious for others sharing living quarters or toilet facilities.

Risk Factors

Individuals at high risk for TD or adverse consequences include young adults (prone to risk-taking behavior and often on

limited budgets); persons with compromised immunity, inflammatory bowel disease, or diabetes; and those taking medicines (e.g., omeprazole) that decrease gastric acidity.

Symptoms

TD caused by bacteria typically presents with abrupt onset of uncomfortable, crampy diarrhea and may be accompanied by nausea or vomiting and, less commonly, fever. TD caused by parasites is usually mild and begins gradually with loose stools occurring in distinct episodes during the day, slowly becoming more bothersome and associated with fatigue. Significant dehydration is uncommon in adults. Persons with protozoal infections often do not seek medical care for several weeks due to the generally mild nature of the symptoms.

Consequences of Infection

Persistent diarrhea, recurrent diarrhea, and other chronic gastrointestinal discomfort (e.g., bloating, gas, constipation) may occur as a result of TD. When diagnostic testing yields no other diagnoses, these chronic gastrointestinal symptoms may be attributed to "postinfectious irritable bowel syndrome."

Need for Medical Assistance

Persons who develop bloody stools or severe symptoms such as intense cramps, fever and chills, or severe thirst (with inability to keep liquids down) that do not rapidly improve with self-treatment should seek medical attention. Illnesses unresponsive to self-treatment will require specific investigation for possible protozoal causes.

Immediate medical care is imperative if an infant or child shows signs of severe dehydration, bloody diarrhea, fever higher than 38.5°C (101.5°F), or persistent vomiting.

Prevention

Food and Beverage Precautions

Guaranteeing the safety of food and beverages is difficult if not impossible when traveling, especially in developing countries. Nevertheless, travelers can continue to enjoy local foods, which is part of the pleasure of international travel; however, completely avoiding diarrhea in certain high-risk destinations may not be possible, even with the strictest adherence to preventive measures. Although some evidence exists to suggest that where food is eaten is more important than what food is eaten, observing food and water precautions helps minimize risk and decreases the number of organisms ingested and the severity of TD if contracted. These precautions also help reduce the risk of other infections, such as dysentery, hepatitis A and E, giardiasis, typhoid, and paratyphoid.

Developing countries don't always have the resources needed to ensure a pure water supply; consequently, tap water is not safe to drink because bacteria or parasites in food or water may go undetected. Even if the local population can drink the water, travelers should not assume that they can. Residents have built up some immunity to organisms in the water, but visitors have not.

No vaccine is available in the U.S., and preventive antibiotics are not recommended. A vaccine with limited effectiveness is available in some countries but is not recommended.

See the following articles: *Food and Beverage Precautions* and *Treating Water*.

Self-Diagnosis and Self-Treatment

The decision to self-treat depends on the severity of the functional disability caused by TD. Increased fluid intake is necessary to correct dehydration. Most cases will resolve with hydration and symptomatic treatment with antimotility or antisecretory agents (see Nonantibiotic Agents, under Drug Treatment). Adding antibiotics for moderate TD may shorten the duration or severity of illness. All severe TD cases should receive antibiotics.

Discuss self-treatment options with a health care provider to obtain appropriate medications for a personal medical kit for travel. A strategy for self-treatment of TD under different circumstances is shown in Table 1.

Table 1: Treatment Options by TD Severity	
Severity of Diarrhea	Recommended Treatment

<i>Mild</i> : loose or liquid stools (without body symptoms) that are tolerable, not distressing, and do not interfere with planned activities.	- Antibiotics are not recommended. - May use bismuth subsalicylate (BSS) or loperamide (for maximum of 48 hours) if necessary for comfort during sightseeing or travel and if not contraindicated.
<i>Moderate</i> : loose or liquid stools with cramps or nausea that interfere with planned activities.	- Antibiotic use not encouraged due to potential for inducing resistant bacteria. May consider empiric azithromycin. Quinolone antibiotics (ciprofloxacin, levofloxacin, ofloxacin) may be used if azithromycin is not carried or not available en route. Avoid quinolones for TD acquired in India and Southeast Asia. - May use loperamide (for a maximum of 48 hours) as monotherapy or together with antibiotics if necessary for comfort during sightseeing or travel and if not contraindicated.
<i>Severe</i> : loose or liquid stools with cramps or nausea that are incapacitating or prevent planned activities. All dysentery (blood or pus in the stools) is considered severe.	- Use empiric azithromycin - Stay in room and use toilet as necessary. - May use loperamide (for a maximum of 48 hours) if necessary for comfort, unless dysentery is present (blood or pus in the stools). - Pay attention to rehydration. - Seek medical attention if symptoms do not rapidly improve or if dysentery is present.

Fluid and Dietary Management

TD in adults is not typically associated with clinically significant dehydration, but replacement of fluids that are lost remains a cornerstone of self-treatment. Mild dehydration can be corrected with any fluid, and a patient should drink any available appropriate fluid until oral rehydration solution (ORS) is obtained. ORS is designed to be rapidly absorbed from the intestine, thus it can be useful even in the presence of vomiting. If an ORS is thought to be indicated, many stores and pharmacies in developing countries carry ORS packets. Travelers going to remote areas should carry their own ORS packets. If not hungry, the ill traveler should drink fluids and not force food. If hungry, eating is encouraged, but avoid alcohol, coffee, strong tea, spicy food, greasy food, and dairy products.

For treating dehydration in children, the following recommendations for use of ORS should be followed:

- Severe dehydration, bloody diarrhea, fever higher than 38.5°C (101.5°F), or persistent vomiting: Immediate medical care is imperative for infants and children.
- Mild to moderate dehydration: Give 60 to 120 mL (2-4 oz) of ORS for every loose stool or vomiting episode to an infant weighing less than 10 kg (22 lb), and give 120 to 240 mL (4-8 oz) to children weighing more than 10 kg.
- Recovery period: Introduce a normal diet as quickly as the child will accept it. Use of specific, restrictive, or liquid diets or withholding food is not necessary.

Drug Treatment

Nonantibiotic Agents

Loperamide (an ant motility drug), which is available over-the-counter, appears to be safer than diphenoxylate (Lomotil), a prescription medicine. Take 4 mg initially; if mild diarrhea continues, take an additional 2 mg every 6 hours, not to exceed 8 mg/day for over-the-counter use and 16 mg/day by prescription; the latter accounts for physician screening for patient contraindications. For children aged ≥ 2 years, loperamide may be dosed at 0.25 mg/kg/day when the modest benefit of a 1-day reduction in the duration of diarrhea is worth the slight risk of an adverse event. Taking higher than the recommended dose of loperamide can cause cardiac adverse events that may result in death in significant overdoses.

Antimotility agents sometimes induce prolonged constipation, even at low doses, and can lead to a bloated, uncomfortable feeling if taken for moderately severe infections without taking an antibiotic as well. Use of these agents should be discontinued if symptoms last more than 48 hours. Loperamide should not be taken by travelers with fever or with bloody stool. Antisecretory agents, such as bismuth subsalicylate (BSS; i.e., Pepto-Bismol and the U.S. formulation of Kaopectate), can also improve some symptoms of TD.

Antibiotics

Travelers are often in areas where prompt, effective medical care is unavailable. Therefore, self-treatment of bacterial diarrhea with antibiotics prescribed and purchased prior to leaving for the trip may be more practical. The use of antibiotics can turn a 3- or 4-day illness into a 1-day illness. However, antibiotic use for TD increases the intestinal carriage of antibiotic-

resistant bacteria in returning travelers, especially in South Asia where 80% of travelers treated with antibiotics acquired resistant bacteria. Antibiotic choice for the treatment of moderate (antibiotics discouraged) and severe TD in adults is shown in Table 2.

Table 2: Antibiotic Treatment for Severe and Moderate Bacterial TD in Adults¹

Causative Intestinal Organism	Antibiotic Prescription ²	Dose/Schedule	Primary Contraindications
Typical noninvasive bacterial causes of severe TD	Azithromycin 500 mg; 4 tablets	1,000 mg orally, single dose ^{3, 4}	Azithromycin allergy
		If symptomatic after 24 hr: continue with 500 mg orally, once per day for 2 more doses	
	Ciprofloxacin 500 mg; 6 tablets	750 mg single dose (1½ tablets)	Quinolone allergy; pregnancy; concomitant administration with tizanidine
		If symptomatic after 24 hr: continue with 500 mg orally, twice per day for 4 more doses	
	Levofloxacin 500 mg; 3 tablets	500 mg orally, single dose	Quinolone allergy; pregnancy
		If symptomatic after 24 hr: continue with 500 mg orally, once per day for 2 more doses	
	Ofloxacin 400 mg; 6 tablets	400 mg orally, single dose	Quinolone allergy; pregnancy
		If symptomatic after 24 hr: continue with 400 mg orally, twice per day for 4 more doses	
Noninvasive <i>E. coli</i> that cause TD (includes ETEC, EPEC, EAEC)	Rifaximin 200 mg; 9 tablets	200 mg orally, 3 times per day for 3 days	Rifamycin (or component) allergy; pregnancy; adults 65 years and older (studies on safety in this age group have not been done)

1. For use when fluid rehydration and antimotility or antisecretory agents are insufficient and diarrhea is severe or moderate (per Table 1). Antibiotic use increases intestinal carriage of antibiotic-resistant bacteria in returning travelers; travelers should be encouraged to restrict the use of antibiotics to self-treatment of diarrhea that is severe.
2. Side effects
Azithromycin: Those with heart problems or heart rhythm problems should only use azithromycin under the supervision of a physician.
Quinolones (ciprofloxacin, levofloxacin, ofloxacin): At the first sign of tendon pain, swelling, or inflammation, the traveler should stop taking the quinolone, avoid exercise and use of the affected area, and seek medical assistance. Quinolones may cause photosensitivity reactions in the tropical sun.
3. Seek medical attention as soon as possible for bloody stools. If effective medical care or medical consultation is unavailable, self-treatment is recommended. Preferred regimen for dysentery (bloody diarrhea) is a full 3-day course with a 1,000 mg initial dose.
4. The 1,000 mg single dose (two 500 mg tablets) can be split into 2 separate doses over the first day to reduce side effects.

Antiparasitic Drugs

In general, patients should not carry these medicines for self-treatment. See a health care provider because a proper diagnosis for parasitic infection is necessary, and these medicines are administered under supervision. Travelers going to extremely remote locations or on long trips may be given tinidazole to carry on a case-by-case basis.

Zika

Traveler Summary

Key Points

- ▮ Zika virus infection is acquired through the bite of day-biting mosquitoes, primarily in tropical countries in the Americas, the Caribbean, and the Western Pacific. The majority of Asian and African countries have lower risk. Male-to-female and male-to-male sexual transmission can occur in countries with or without mosquito-borne transmission.
- ▮ Risk is high for travelers in populated urban and residential areas of affected regions.
- ▮ Symptoms present in only about 20% of cases and include a rash, itching, headache, and muscle and joint pain.
- ▮ Consequences of infection include Guillain-Barré syndrome, which is an autoimmune, neurological complication. Infection during pregnancy is strongly associated with congenital malformations in the fetus.
- ▮ Prevention includes wearing long sleeves and long pants as well as using personal protective measures against mosquito bites. Additional measures are necessary for pregnant women or those trying to conceive, including:
 - ▮ Not traveling to the most severely affected areas
 - ▮ Abstaining from sex or practicing safer sex while in Zika-affected areas
 - ▮ Abstaining from sex or practicing safer sex when one or both partners have returned from or reside in a Zika-affected area
- ▮ No vaccine or preventive drugs are currently available.
- ▮ Returned travelers with symptoms or pregnant partners should seek expert medical assistance.

Introduction

Zika virus infection is transmitted by *Aedes aegypti* mosquitoes. It is closely related to dengue, West Nile virus, and Japanese encephalitis. Symptoms appear in approximately 1 of 5 infected persons. When symptomatic, infection usually presents as an influenza-like syndrome and is often mistaken for dengue or chikungunya.

Risk Areas

Until 2007, limited reports indicated infrequent, sporadic human infection in at least a dozen countries of Africa and Southeast Asia, which continues to the present. After a large outbreak in Micronesia in 2007, the virus spread to French Polynesia (occurring in 2013-14), a few other Pacific Islands, and in early 2015, to Latin America (starting in Brazil), the Caribbean, Cabo Verde, and Singapore. In the U.S., mosquito-borne transmission occurred in focal areas in Miami-Dade County, Florida and Brownsville, Texas in 2016. More than 1 million cases have occurred during the current global outbreak. Mosquito-borne transmission in areas above 2,300 m (7,500 ft) is not believed to occur.

Transmission

Humans become infected when bitten by *Aedes aegypti* mosquitoes. Transmission via blood transfusion, during pregnancy or delivery, and during sexual activity (male-to-female and male-to-male) may occur, although fewer than 30 confirmed cases due to sexual transmission have been reported to date. Dead Zika-virus breakdown products have been detected in saliva, urine, and breast milk of ill persons, without proof of any risk of infecting others.

Risk Factors

All persons residing in or visiting a Zika-affected area when there is ongoing transmission are at risk of acquiring Zika virus. In nonaffected areas, sex partners of infected males returning from affected areas are at a low but undetermined risk of acquiring infection. Transmission via blood transfusion has not been documented in nonaffected areas.

Symptoms

The incubation period is 3 to 14 days. Most persons have a rash (reddened skin covered with small bumps), headache, malaise, muscle aches, joint pain, eye redness, and occasionally, fever. The illness is usually mild, with symptoms lasting 4 to 7 days. viral-hemorrhagic-fevers fever has not been reported.

In the early stages of the disease, Zika virus infection is indistinguishable from dengue and chikungunya, which often coexist in the same locations.

Consequences of Infection

Severe disease requiring hospitalization is uncommon. Based on available data, Guillain-Barré syndrome, an autoimmune neurological complication that can occur after a viral infection, occurs in an estimated 1 per 5,000 infections. No deaths have been reported.

Zika virus infection during pregnancy causes congenital central nervous system malformations, including microcephaly (small head size), brain damage, and eye damage in 6% of infants. An additional 9% of infants develop nervous system problems (e.g., seizures, problems swallowing or moving, or developmental delays) during the first year of life, possibly caused by Zika virus. Other outcomes and the factors that increase risk to the fetus are not yet fully understood. A fetus may be at risk during all trimesters of pregnancy, although the risk of adverse fetal effects is highest during the first trimester. Several cases of adverse pregnancy outcome (microcephaly or fetal loss) have been reported in pregnant women in the U.S.; all women reported previous travel to a Zika-affected country while pregnant.

Need for Medical Assistance

Medical assistance is not normally necessary because serious complications are extremely rare. Most Zika virus infections resolve spontaneously over a few days. Self-medication with paracetamol (acetaminophen) may help relieve some symptoms.

Pregnant women with symptoms consistent with Zika virus infection during or within 2 weeks of travel to risk areas or who have ultrasound findings of fetal microcephaly or calcifications in the head should seek expert medical care and testing as soon as possible upon returning home. Pregnant women without symptoms may be tested from 2 to 12 weeks after returning from a risk area. Pregnant women with possible sexual exposure to Zika virus may be tested.

Testing of any traveler (including pregnant women) returned from non-Zika affected areas is not recommended.

At this time, testing men for the purpose of assessing risk for sexual transmission and testing asymptomatic women contemplating pregnancy are not recommended.

Prevention

Personal protective measures are the main prevention strategy. No vaccine or preventive medications are available.

Mosquitoes that transmit Zika virus (*Aedes* spp.) can bite throughout the day but have peak biting activity in the early morning and late afternoon and evening. Travelers (especially pregnant women) should be especially vigilant in applying repellent during peak biting activity times.

Pregnant women and their babies are at special risk from the consequences of vector-borne diseases. Clothing should cover as much skin as practicable, leaving only extremities, head, and neck exposed. DEET (N,N-diethyl-meta-toluamide) and picaridin can be used by pregnant and breastfeeding women but should not be applied directly to the nipple area to prevent ingestion by breastfeeding children. DEET has been shown (in 1 short-term study) to be safe in the second and third trimesters of pregnancy when used at concentrations of 20% or lower; however, the use of DEET in the first trimester has not been well studied. Although no evidence exists that the use of DEET or picaridin by pregnant or lactating women poses a health hazard to unborn babies or children who are breastfeeding, no long-term follow-up studies are available. DEET may be more effective, see *Literature Watch Review: Insect Repellents for Vectors of Zika Virus*. Botanical repellents are ineffective.

Treat outer clothing, boots, tents, and sleeping bag liners with permethrin (or other pyrethroid) when traveling in a very high risk area for Zika virus infection.

Additionally, containers with stagnant water can serve as breeding sites for mosquitoes and should be removed from the proximity of human habitation whenever possible. See *Insect Precautions*.

Pregnant women (in any trimester) or those trying to conceive should discuss specific travel recommendations with a travel health provider. The level of risk varies by country, and travel recommendations for pregnant women are tiered by risk level.

- ┆ Significant risk (Mexico, Central and South America, and the Caribbean): Do not travel to affected areas.
- ┆ Low risk (most of Southeast Asia and a few African countries): Consider postponing nonessential travel after receiving informed advice.
- ┆ Negligible risk (most African countries): Use insect precautions.

Many other typical tropical infections pose greater risk than Zika virus infection for pregnant women and their unborn children.

Sexual transmission appears uncommon at present. For couples where one or both partners (symptomatic or asymptomatic) have returned from or reside in a Zika-risk area, practicing abstinence or safer sex (consistent male or female condom use, nonpenetrative sex, and a reduced number of sexual partners) is recommended for, at least, the duration of the pregnancy when the female partner is pregnant. Travelers with symptoms should ideally abstain from sex pending test results and seek expert advice if Zika virus infection is proven.

Current understanding is that, if infected, Zika virus usually remains in the blood of an infected person for about 10 days. The

virus will not cause infection in a baby that is conceived after the virus has cleared from the mother's blood. Men living in areas with no active transmission of Zika virus, but returning from active transmission areas, should abstain from sex or practice safer sex for a period of at least 3 months upon return before attempting conception. Women returning from active transmission areas or after having unprotected sex with an infected partner should wait at least 2 months before attempting to conceive. These recommendations apply to both symptomatic and asymptomatic persons. The longest interval from symptom onset in an index case to documented sexual transmission is 41 days.

Countries are developing their own policies regarding blood donation. In the U.S., the recommendation is that all blood donations be screened and deferred for 120 days following a positive test or symptom resolution, whichever timeframe is longer.

Travax content represents decision-relevant, expert synthesis of real-time data reconciled with new and existing available advice from authoritative national and international bodies. Recommendations may differ from those of individual countries' public health authorities. Travax country-specific recommendations pertain to healthy adult travelers. Guidance regarding pediatric and special needs travelers can be found under the relevant topic in the Travax Library.

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